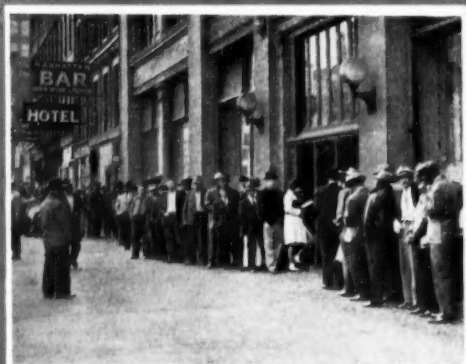


# Chemical Week—

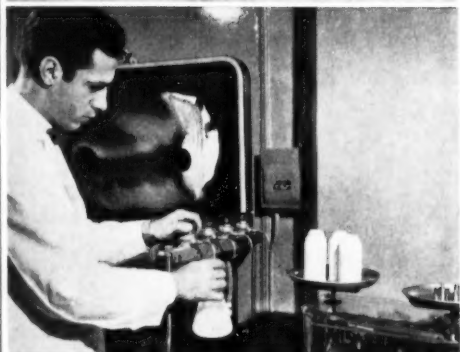
April 24, 1954

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▶ Jobless seek jobs in some spots; jobs go begging in others; here's the nationwide picture . . . p. 16

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▶ There's more to aerosol perfumery than meets the nose; new lab zeroes in on problems . . . p. 66

Cheaper fumaric and more of it presages wider use in resin formulations . . . . . p. 93

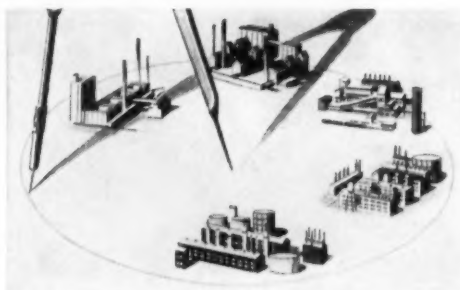


▶ N. J.'s Roe and Hesselbrock say aye to hot-potato question: Labs as neighbors? . . . . . p. 101

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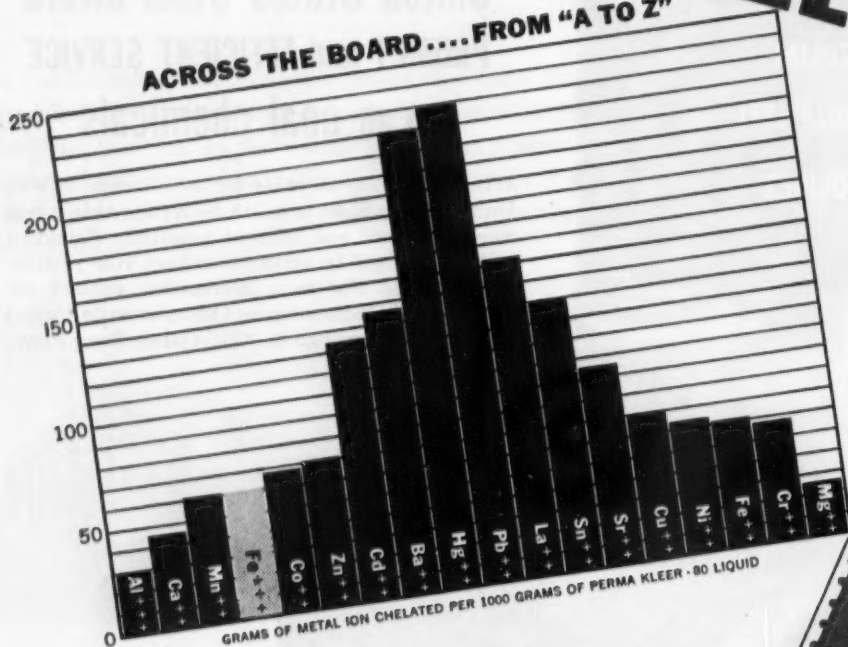
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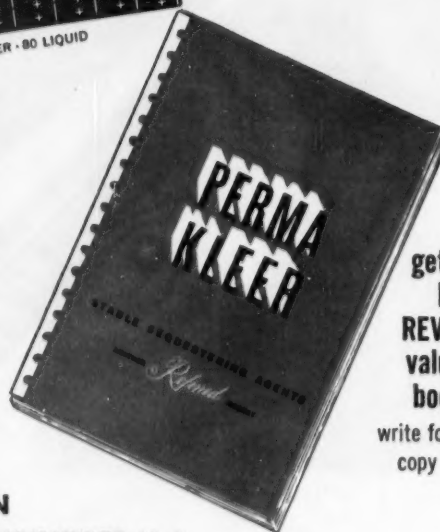


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# Service dictionary for **ALCOA**

Because of its long service life and low initial cost, ALCOA Aluminum has become one of the most popular metals in the chemical industries. Perhaps this service dictionary will help show why . . . and suggest some uses that can mean less down time, improved operations and greater savings in *your* business.

## **Acetic and other Aliphatic Acids**

ALCOA Aluminum used in equipment producing glacial acetic acid has a service record as long as 17 years. Propionic and butyric acids as well as several of the higher molecular weight acids (fatty acids) also are processed, stored, and shipped in aluminum equipment.

## **Air and Gas Coolers**

Aluminum heat exchanger tubes have been used successfully in air compressor intercoolers and aftercoolers. In one specific intercooler installation, aluminum tubes are still in service after more than 16 years with no significant corrosion being apparent. Alcoa Aluminum tubes are considered ideal for intercoolers handling natural gas, hydrogen sulfide, carbon dioxide, and many other gases.

## **Ammonia**

ALCOA Aluminum heat exchanger tubes have given up to 15 years continuous service handling mixtures of ammonia gas, carbon dioxide, and water vapor in soda ash plants. More than 12 years of service have been experienced in the use of aluminum tubes in ammonia dephlegmators and condensers. Aluminum storage tanks, piping, and bubble cap towers for ammonia recovery are now in service.

## **Ammonium Nitrate**

Ammonium nitrate and its aqueous solutions are handled extensively in aluminum. Aluminum evaporators, crystallizers, condensers,

screens, piping, pumps, tankage, and prilling towers are in use. Aluminum pressure vessels, piping, and tank cars are also used to handle ammonium nitrate fertilizer solutions.

## **Food and Drug Processing**

ALCOA Aluminum has been used in these processes for over 30 years. Nontoxic to living organisms, aluminum successfully handles Chloromycetin, citric acid, gluconic acid, oxogluconic acid, calcium gluconate, dextro-lactic acid, Penicillin, Streptomycin, sorbose, and riboflavin.

## **Formaldehyde**

Several ALCOA Aluminum condenser installations with excellent service records (some as long as 12 years) are in operation handling formaldehyde. Aluminum distillation towers, storage tanks, piping, heat exchangers, shipping drums, and tank cars also are in this service.

## **Hydrocyanic Acid**

Aluminum process equipment for handling hydrocyanic acid includes distillation towers, absorption towers, heat exchangers, condensers, tankage, piping, and shipping drums.

## **Naval Stores**

Naval stores—turpentine, rosin, copal, pentene, dipentene, and pinene—are widely handled in aluminum equipment. Aluminum resin kettles, evaporators, condensers, storage tanks,

# ALUMINUM in the chemical industries

transfer lines, distillation equipment, piping, and shipping drums have been in service for over 20 years.

## Oxygen

Aluminum is one of the most economical materials of construction for tonnage oxygen plants. Its mechanical properties increase substantially with decreasing temperature with no loss in ductility. Among its applications in this field are low pressure fractionating towers, trays and bubble caps, reboilers, acetylene separators, piping, conventional heat exchangers, and unique gas-to-gas reversing exchangers with very high transfer characteristics.

## Petroleum Products

Aluminum storage tank roofs for sour crude oils have been in service for more than 20 years in locations where steel roofs failed in less than 5 years. ALCOA Aluminum heat exchanger tubes have been used for more than 18 years handling sour gasoline stocks. Aluminum bubble cap towers have given service of 10-15 years in debutanizer columns handling gasoline distillate from West Texas sour crudes at 200-425°F. Aluminum's low cost coupled with its remarkable resistance to corrosion by sulfur compounds has established its use in this industry.

## Refrigeration

In addition to the inorganic refrigerants,

ammonia and sulfur dioxide, several halogenated organic compounds are used in aluminum refrigeration equipment. Of these, the Freons have proved very satisfactory for use in aluminum.

## Soaps & Cosmetics

For nearly 25 years ALCOA Aluminum has been in continuous service handling fatty acids in storage tanks, condensers, piping, and tank cars. Aluminum protects the stability and color of essential oils, edible oils and fats and glycerine . . . effecting trouble-free service and yielding a higher quality product.

## Solvents & Oils

Oils from animal and vegetable sources have negligible action on aluminum. Thus, lard oil, castor oil, cottonseed oil, peanut oil, olive oil, and palm oil are processed in aluminum. Aluminum piping, tubing, and process equipment are also used to handle solvents such as naphtha, benzene, diethyl ether, and others.

## Sulphur

One important factor favoring aluminum's use in the chemical and petroleum industries is its high resistance to corrosion by sulphur and sulphur compounds, notably hydrogen sulfide, one of the greatest sources of corrosion in the petroleum field. Sulphur vats, forms, piping, conveyors, hopper cars, and structures of ALCOA Aluminum are used to handle the elemental sulphur.

## Helpful ALCOA Booklets

Call your nearest Alcoa sales office or write for any of these free booklets:

*Alcoa Aluminum in the Process Industries*  
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# OPINION

## Base-Line Battle

TO THE EDITOR: . . . I refer to the chart on p. 24 of the April 3 issue, intended to represent capital expenditures in four calendar years. I have measured off the heights of the bars on this chart, and they come out according to the following tabulation:

	Height, inches	Expenditures \$ in billions
1951	1.19	1.25
1952	2.33	1.39
1953	3.77	1.56
1954	1.72	1.31

As you will see, the heights give an entirely erroneous impression of the changes from year to year. To be specific, they imply that the reduction from 1953 to 1954 is 119% of the 1954 estimate, whereas actually the reduction is only 19%.

It is a recognized axiom of graphical representation that charts with arithmetic scales should run down to the origin so that the height of the line or bar will accurately represent the relative proportions of the values; on scales representing indexes in terms of some standard taken as 100, then 100 should always be represented, for the same reason. To drive my point home, think what might happen if the bars had been cut off just a little higher than the point actually chosen in this representation.

THOMAS H. CHILTON  
Technical Director, Engineering Dept.  
Du Pont Co.  
Wilmington, Del.

TO THE EDITOR: Allow me, a constant reader of your excellent magazine, who derives much benefit from its clear and up-to-date reporting, a slight criticism of a matter that has been annoying me frequently.

You will find a good example of what I want to point out on p. 24 of your April 3 issue. There you give a graphic representation of the capital expenditures of chemical and allied producers.

The purpose of graphs is to make ratios, percentages, trends, or other collective conceptions understandable to the reader by reducing figures to dimensions directly comprehensible to the eye, without requiring abstract comparison of figures.

Looking at the graph referred to above, the first impression is that the capital expenditures in 1954 will be about half of those of 1953. The graph, used as a graph should be used, therefore conveys an entirely wrong impression. In order to under-

stand what it means, you have to refer to the figures printed in the bars and compare them, not the bars. You can then go on and calculate arithmetically the dollar value of the base line, which I find to be approximately 1,090. You can go on and figure out how long the bars actually should be in order to give the impression that the graph should give, if it were designed correctly. You would find that the bars extend far below the bottom of your page.

After doing all these calculations, the question remains: What is the purpose of a graph that instead of telling its own story, tells an entirely wrong story and requires comparison of figures and mathematical calculations in order to find out what it means?

I think graphs are the best means of conveying the maximum information in a minimum of time, but in order to do that, they have to be correct. I would rather see more graphs and less figures in your magazine, but be sure that the graphs are graphs and not just heavy rectangles taking up a half page without any meaning at all.

WALTER H. PRAHL  
Vice-President, Research and Development  
Durez Plastics & Chemicals, Inc.  
North Tonawanda, N.Y.

*We agree with Readers Chilton and Prahl in theory. We dislike misleading graphs just as we do misleading words. But we also think that the chief purpose of a graph is to get an idea across easily and quickly; and since the idea of each graph is different, it's difficult to generalize and say that all bar charts must start at zero. If the over-all figure is the important idea, then one should start at zero; but if the change from one figure to another—small percentage-wise, perhaps, but significant—is the key concept, one should be permitted to emphasize that difference.*

*The big news in the chart under discussion is the expected downturn in capital expenditures this year. Suppose we draw the bars so that 1 inch = \$500 million. The 1952 bar will be 2 25/32 inches high; 1953, 3 1/8 inches; 1954, 2 5/8 inches. It would take a sharp eye indeed to detect the 5/32-inch difference between 1952 and 1954.*

*Certainly the actual figures should be given—and they were—to forestall misunderstanding. It may be advisable, too, to use broken bars when the vertical scale is compressed.*

*We shall consider each graph as a separate problem, guided in every case by the consideration that it is our function to enlighten, not to mislead.—Ed.*

## Gas Tax

TO THE EDITOR: I have just read your story on the Texas chemical industry (Mar. 27). It is a most informative article. . . .

I do not believe the increase I have recommended in the franchise tax will have any appreciable effect on further expansion by the chemical companies. . . .

ALLAN SHIVERS  
Governor  
State of Texas  
Austin, Tex.

## "Equal Necessity"

TO THE EDITOR: CW . . . (April 10) puts the spotlight on a big weakness of the Administration's foreign trade program. As you stated, the President takes the stand that our national security will be strengthened by building up foreign countries friendly to us. Left out entirely is the equal necessity of strengthening our national security by protecting domestic productive capacity essential to national defense.

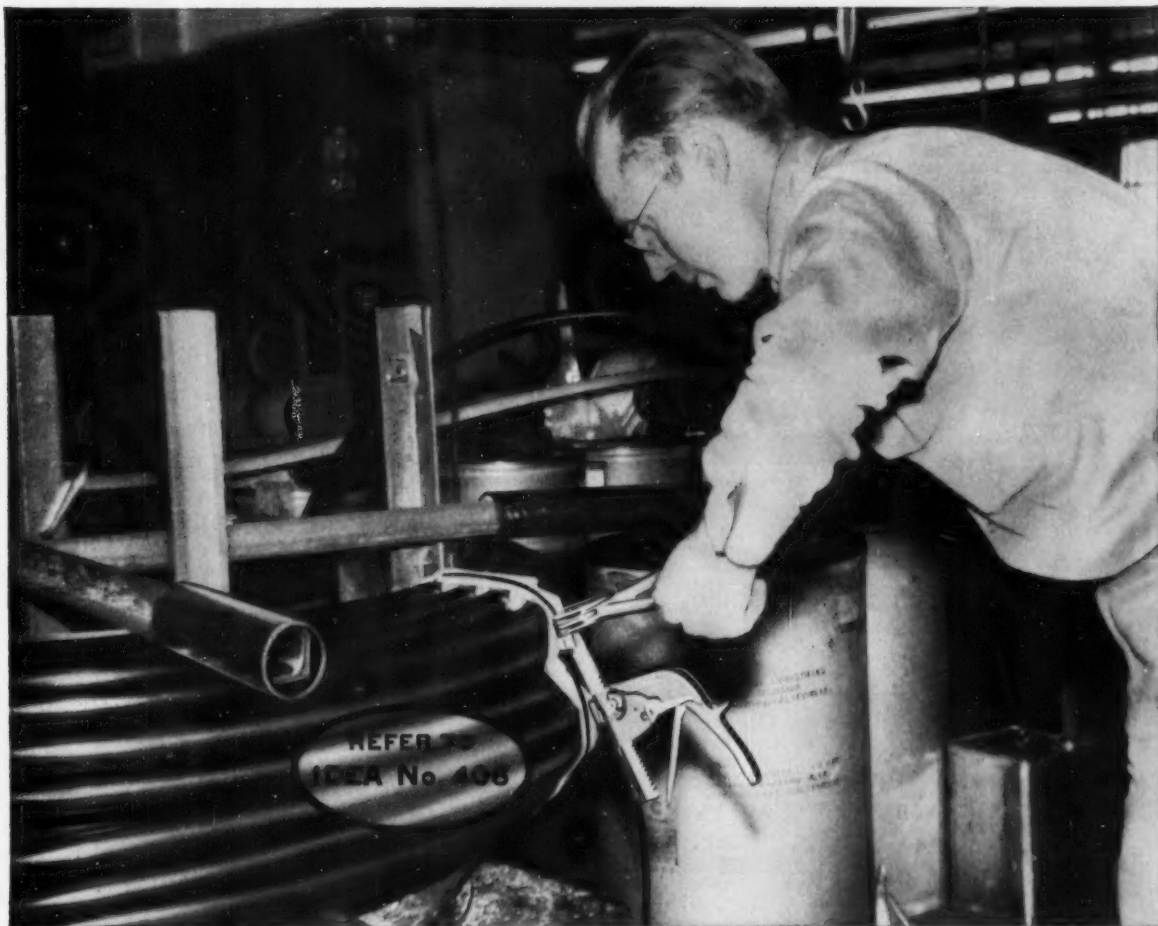
One would think that enlightened self-interest would call for an approach of assisting our foreign friends while at the same time assuring that industrial mobilization reserves in this country are not injured by our foreign trade policy.

As you put it, the difference between the Synthetic Organic Chemical Manufacturers Assn. and the Administration is one of approach. SOCMA wants the peril point and escape clause streamlined for the very purpose of keeping our essential mobilization reserve intact. We oppose the Administration's customs valuation bill because it lops off 12% or more of the chemical industry's tariff protection without any selectivity and unaccompanied by the kind of safeguards which we believe an im-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to:  
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### OPINION . . . . .

proved peril point and escape clause would provide.

CW readers who are interested in SOCMA's definitive statement on *Trade, Strength and Security*, as you term it, may have one free for the asking by writing to the Association at 41 E. 42d St., New York, N.Y.

Meanwhile, thanks for nailing down so well a big issue in the forthcoming tariff battle so important to the chemical industry.

CARY R. WAGNER  
President  
SOCMA  
New York, N.Y.

### Perplexing Problem

TO THE EDITOR: The article . . . "Bugs, Weather: Can They be Correlated?" . . . is an excellent write-up of an interesting but perplexing problem and the article contains data we are pleased to have . . .

J. E. STEVENS  
Shell Chemical Corp.  
New York

### DATES AHEAD

Assn. of Consulting Chemists and Chemical Engineers, symposium and banquet Belmont Plaza hotel, New York, April 27.

Electrochemical Society, annual meeting, LaSalle hotel, Chicago, May 2-6.

Air-Pollution Control Assn., annual meeting, Patten hotel, Chattanooga, Tenn., May 3-5.

Forest Products Research Society, national meeting, Grand Rapids, Mich., May 5-7.

National Cottonseed Products Assn., annual meeting, Shamrock hotel, Houston, May 7-11.

Chlorine Institute, spring meeting, Seaview Country Club, Absecon, N.J., May 11-12.

American Institute of Chemists, annual meeting, Hotel Berkeley-Carteret, Asbury Park, N.J., May 12-14.

Flavoring Extract Manufacturers Assn., annual convention, Biltmore hotel, New York, May 16-19.

American Institute of Chemical Engineers, spring national meeting, Kimball hotel, Springfield, Mass., May 16-19.

Chemical Market Research Assn., annual meeting, Statler hotel, New York, May 20.

Chemical Specialties Manufacturers' Assn., midyear meeting, Netherlands Plaza hotel, Cincinnati, May 23-25.

Technical Assn. of the Pulp and Paper Industry, paper coating conference, Poland Spring House, Poland Spring, Me., May 24-26.

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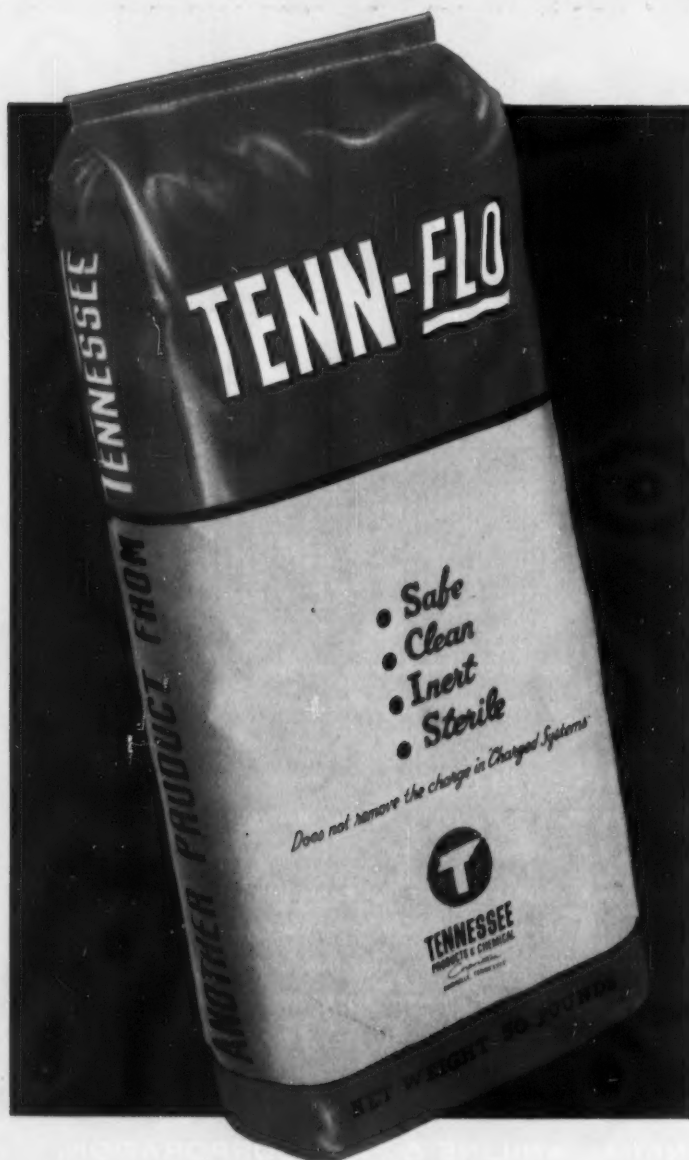
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## NEWSLETTER

There's still a wide divergence of thought on the economic health of the chemical industry. A spokesman for the optimist school, Du Pont President Crawford Greenewalt, sees no reason to change his mind. At a meeting of stockholders last week, he revealed that he faced the long-term future "with the greatest confidence."

Du Pont business, he noted, is about at the same level as it was last year. And he expects an upturn later in the year.

For the long-range, of course, the economic well-being of the industry depends largely on the solution of technological problems. One such problem deals with water, is being assaulted from several sides this week:

- After a three-year study, the University of California's Dept. of Engineering concluded that waste water should be considered a water resource. The investigation revealed that there are approximately 1 million acre-ft. of water/year in California potentially available for reuse.

This conclusion reaffirms the stand of processing companies which are way out in front on the reutilization of "waste water." Shell, for instance, will build a plant in Ventura (Calif.) to convert the city's sewage-plant effluent into process water.

- The Interior Dept. has awarded two large contracts on its saline water conversion program to Ionics, Inc. (\$88,000) and the Badger Manufacturing Co. (\$80,000), both of Cambridge, Mass.

Badger will go to work on compression distillation equipment. Interior officials feel that the cost of distilling water from the sea by such equipment can be brought down from \$1.25-\$1.50/thousand gal. to 30-40¢/thousand gal. That would put it within the price range of municipal and industrial users in water-short areas like southern California.

The Army's Corps of Engineers is already hard at work on compression-distillation methods, has made some significant progress (see p. 108).

The contract with Ionics, Inc. calls for field-testing the firm's electrical membrane process on brackish water. This approach has attracted a lot of attention in the past. Ionics, however, isn't the only one working on it. Rohm & Haas, for instance, is cooperating with Hooker Electrochemical in a study along similar lines.

Utex Exploration Co. and Combined Metals Reduction Co., last week decided to pool efforts to build a \$4-million uranium mill at Moab, San Juan County, Utah.

The plan is to build a concentrator to serve independent operations in the uranium fields of Colorado and Utah. Construction is scheduled to be under way by the third quarter of this year. The whole deal, however, hinges on approval by the Atomic Energy Commission.

Come September, the Texas state tax on natural gas production will rise from the current 5.72% of market value to 9%. A year later it will drop to 8%, and thereafter it will be held at 7%.

The gas tax hike—which will boost the cost of petrochemical production as well as other operations dependent on natural gas—was signed into law last week by Governor Shivers.

The Easter weekend was a “seventh-inning stretch” for Congress, and in the hectic innings remaining before a likely early-July adjournment, much legislation of concern to the chemical process industries will either become law or suffocate in committee pigeonholes (see p. 15).

Taxes and tariffs are of prime concern, of course, but of comparable interest to chemicals and equipment makers are bills about air and water pollution. Tacked onto the housing bill is a provision granting fast tax write-off and equipment mortgage guarantees on air pollution abatement facilities. If this provision remains in the bill finally passed by the Senate, chances are better than even of its becoming law.

Far less likely to pass is legislation designed to reduce water pollution in the Buffalo-Niagara area. Local industries—and the Manufacturing Chemists’ Assn.—have opposed the proposals.

A tall, husky swimmer mourning the drowning of a hundred small customers by a tidal wave of cheap imports. Thus did Monsanto’s Richard Lawrence, the firm’s senior market analyst, picture the producers of heavy and intermediate chemicals in a tariff talk this week to the American Chemical Society’s Chicago Section.

Lawrence figures that the big manufacturers of basic chemicals are pretty well able to take care of themselves; but their customers—makers of batch chemicals like dyes, pharmaceuticals, and related products requiring relatively more labor—would founder under the onslaught of foreign products made by low-paid technicians. Their suppliers, of course, would suffer the consequences.

Advocating maintenance of present tariff levels, Lawrence contended that “if there are further slashes . . . , much organic chemicals manufacture in this country would be lost to the East bank of the Rhine, within easy reach of the Russians.”

A plague on both your houses, said production workers at B. F. Goodrich Chemical’s vinyl chloride plant (Calvert City, Ky.) to both the CIO and the AFL. Eleven of the 55 eligible employees voted for a CIO Gas-Coke unit, one for the AFL Machinists, and a solid 41 voted for no affiliation at all in the first election at the 14-months-old plant.

More titanium activity: Western Pyromet Co. will use the government’s magnesium plant at Mantika, Calif.—idle since last summer—to pilot-plant its modification of the Kroll titanium process.

And contracts now under discussion between GSA and Dow, and GSA and Union Carbide’s Electromet Division, involve processes that are “such substantial modifications . . . as to be really new processes.”

A barrier to private-enterprise atomic development was chipped at last week. A company now can’t patent a process or device useful only in producing plutonium or fissionable uranium, but bills introduced in Congress last week will permit such patents. Passage, says the joint atomic energy committee, will spur industrial participation.

... The Editors



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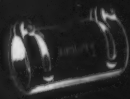


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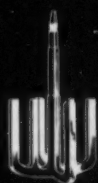
Quirkupl



valve



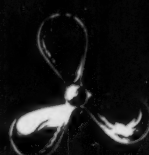
impeller



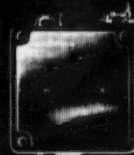
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## BUSINESS &amp; INDUSTRY . . . .

## Box Score On Congress—At Seventh Inning Stretch

Legislation	Action in The House	Action in The Senate	Outlook
Tariffs and Foreign Trade	Hearings not started.	Hearings not started.	No major changes likely. One-year extension of reciprocal trade is still a good bet.
Tax Revision	Passed bill favored by Administration.	Committee is working on same bill.	Passage expected.
Air Pollution	Hearings not started.	Fast tax write-off and mortgage guarantee favored by committee studying housing bill.	House sentiment not known; such measures have had tough time heretofore.
Water Pollution	Committee held hearings on pollution of Lake Erie and Niagara River.	Hearings not started.	Passage doubtful.
Pesticides	Passed Miller bill.	Hearings scheduled for next month.	Passage stands a good chance this year.
Food Additives	Hearings not yet scheduled on Miller, O'Hara and Delaney bills. New entries will be introduced.	Passed Hale bill and sent it to the White House.	Aside from Hale bill, no chance for approval this year. Compromise bill likely next session.
Food and Drug Law—Recodification	Being prepared by sub-committee.	Hearings not yet scheduled.	Bill is not controversial, but may be overlooked in rush for adjournment.
Tennessee Valley Authority	Passed appropriation bill.	Hearings to be held next month.	Fertilizer and chemical operations expected to continue at same level.
Agriculture Department Research	Full House over-rode Farm bloc's attempt to switch research funds to price supports.	Hearings to be held next month.	Fate of research program depends on pitched battle expected in Senate.
National Science Foundation	Passed appropriation bill, allowing operation at present \$8 million level, plus \$3 million transfer from Defense Dept.	Hearings not yet started.	Senate might be a bit more lenient.
National Bureau of Standards	Committee recommends 25% cut in budget request.	Hearings not yet started.	Senate may not go along on so drastic a slash.
Business & Defense Services Administration	Passed appropriation bill, allowing funds equal to present level.	Committee holding hearings this week.	Slight increase expected over current level of operations.
Taft-Hartley Revision	Committee is recommending amendments more strict on unions than those asked by administration.	Committee is favorable to amendments asked by administration.	Bill agreeable to both sides highly unlikely.



## Other Industries' Orphans

### Group IV Communities

(Labor supply *substantially* greater than requirements)

INDIANA  
South Bend

NEW JERSEY  
Paterson

WASHINGTON  
Tacoma

MICHIGAN  
Battle Creek  
Detroit

OHIO  
Toledo

WEST VIRGINIA  
Charleston  
Morgantown  
Wheeling-Steubenville

### Group III Communities

(Labor supply *moderately* greater than requirements)

ALABAMA  
Birmingham  
CALIFORNIA  
Los Angeles  
San Francisco-Oakland  
CONNECTICUT  
Bridgeport  
DELAWARE  
Wilmington  
GEORGIA  
Savannah  
KENTUCKY  
Louisville  
LOUISIANA  
Shreveport  
MARYLAND  
Baltimore  
MASSACHUSETTS  
Boston

MISSOURI  
Kansas City  
St. Louis  
NEW HAMPSHIRE  
Manchester  
NEW JERSEY  
Newark  
Perth Amboy  
Trenton  
NEW YORK  
Albany-Troy-  
Schenectady  
Binghamton  
Buffalo  
New York  
Syracuse  
OHIO  
Akron  
Canton  
Cleveland

OREGON  
Portland  
PENNSYLVANIA  
Erie  
Philadelphia  
Pittsburgh  
Reading  
TENNESSEE  
Chattanooga  
Knoxville  
TEXAS  
Austin  
Beaumont-Port Arthur  
Corpus Christi  
Fort Worth  
Houston  
San Antonio  
WASHINGTON  
Seattle  
Spokane

## Faster Pickup, Steadier Drive

The traffic jam in the country's industrial economy is breaking up, it appeared this week; and as traffic began to move again, the chemical industry seemed to be off with the fastest start. Evidence of the chemical companies' superior pickup power: chemical employment—which hadn't dipped half as much as that of most other industries during the current readjustment—increased by nearly 4,000 persons last month, while the all-manufacturing employment total continued to dwindle.

Actually, the chemical industry has shown unique staying power during the past year. A CW survey this week discloses that even in those communities that have the worst unemployment situations, employment in chemical plants has been holding its own or even rising.

**Declines Are Few:** Polls of 16 chemical producers in 6 localities with serious labor surpluses, gives a breakdown like this:

- Plants at which employment is  
(a) greater than in May '53—6;  
(b) equal to that of May '53—7;  
(c) less than in May '53—3.

In the largest of these 16 plants—namely, the Dow works at Midland, Mich.—the plant force was down by just 61 persons to a total of 9,500, so that the drop amounted to less than 1%. Another large Michigan plant with only a minimal drop, Wyandotte calculates its employment has slipped by only 0.049% since last May.

The third plant reporting fewer employees in this survey is Toledo's Plaskon facilities, acquired last year (CW, Oct. 10, '53, p. 18) by the

Barrett Div. of Allied Chemical & Dye. Plaskon says employment dropped by "less than 5%" since last May, but that it should be back up to the higher level by next month.

**No Summer Slump:** Possibly the brightest news in the survey is the fact that all but two of the 16 plant managers expect their employment figures to remain up throughout the coming six months. One Michigan firm that has been operating recently at only about 50% of capacity anticipates that its plant force will have to be trimmed by about 4½% by next October, and a West Virginia plant expects a 10% cutback by next autumn.

Although Secretary of Labor James Mitchell has recognized serious unemployment trouble in the Puget Sound area, chemical plants there

say that business is brisk. At Seattle, American-Marietta and Reichhold report employment gains of 8% and 5%, respectively, and both expect this trend to continue into the fall. At Tacoma, Pennsalt and Hooker both have 10% more employees than last May, and see no reason for a decrease by next October. A seasonal rush may require an additional but temporary 10% increase at Pennsalt this summer.

**One Mercuric Rise:** Greatest relative rise in employment uncovered in this survey: The "nearly 15%" increase related by busy Metalsalts Corp., maker of mercurial compounds at Paterson, N.J. Three other chemical manufacturers in the Paterson vicinity say they haven't had any layoffs since last May and don't expect any during the next six months.

Other samples of the industry's stability: Both the Du Pont plant at Toledo and the Reichhold plant near Detroit report they have the same number of employees now as they had last May, and that they're counting on no changes between now and autumn.

For two of the Puget Sound companies polled, last month was their best business month in the past two years; another plant in that area says its two best months since 1952 were Dec. '53 and March '54. Four of the other plants enjoyed liveliest business conditions during the spring and early summer last year; two plant managers said their plants were busiest during the first half of 1952.

As to current production rates, one plant is operating at "much above capacity," and two others are running at full loads. One plant manager brought his output rate up to 85% this month, highest in the company's history. Other production rates for April range from 50% to 80% of capacity.

**Worst in Eight:** While Secretary Mitchell has designated numerous communities throughout the country as labor surplus areas (see table, p. 16), unemployment seems to have struck hardest in eight states. Nearly half of all persons claiming unemployment benefits in February were in Illinois, Indiana, Michigan, New Jersey, New York, Ohio, Pennsylvania, Wisconsin. All of these except Wisconsin are loaded with chemical producing plants; but the evidence indicates that the chemical companies have contributed very little to the unemployment totals.

During the past two years, the high point in chemical process industries' employment was in Sept. '53, when job-holders numbered 759,100. Low point, so far, was Feb. '54, at 734,200.



**LABOR'S MITCHELL.** Least of his unemployment worries: chemical plants.

This was a drop of just 3.3%. By contrast, the high-water mark for all-manufacturing employment (including chemicals) was 17,265,000 last August; and the lowest level since then was last month's 15,873,000—a fall of nearly 8.1%.

Within the chemical industry, employment during the past winter was fairly close to the stages of the preceding winter. In four important segments of the industry, employment in Jan. '54 was higher than in Jan. '53: Industrial inorganic chemicals, up 2,900 to 84,600; soaps and other cleaning and polishing preparations, up 200 to 49,600; paints, pigments and fillers, up 500 to 74,200; and gum and wood chemicals, up 200 to 7,800.

It was in February that the tide began to turn in chemical employment, although this wasn't noticeable right away. In February, rate of separation of chemical employees diminished by nearly 5%, and rate of hiring new employees picked up by 33% to 1.6 persons per 100 employees. As of now it appears that "readjustment" was really the proper term for the past 12 months.

## Eased but Not Lifted

Like harried baseball managers, at the start of another season, chemical company personnel directors are prone to mourn woefully on the shortage of technical manpower. But this year, when pressed, some admit the shortage is easing up somewhat; a few others predict "by next year we should be able to fill our quotas fairly adequately."

Regionally, reaction is much the same. Chemical companies that now say

they're "sorely pressed" to find chemists and chemical engineers from this June's graduating class are apt to qualify their plaint with specific charges of favoritism by university placement officials. Typical: "We applied for a date to send placement officials to the university early last fall. But they're getting much rougher about that sort of thing these days. We were told company representatives couldn't come on campus except during a specific period, that all the days were virtually filled up. Eventually we did get a date, but it's not a preferable one. A lot of the top fellows will be tied up before we even arrive . . ."

Others admit their difficulty as one of "not wide enough coverage." Says an Eastern chemical company executive: "Our main trouble in filling our openings is mainly that of not being able to get around to enough of the schools. Many of the biggest engineering colleges are in Texas, the South and the Midwest. We attempt to interest some of the fellows there by mail, brochures, etc. But it doesn't have the same effect that a personal visit does . . ." Or again: "The major chemical companies send out task forces of representatives to the colleges every spring. We know we can't compete, don't try. But there are always some graduates who don't want to work for big corporations. We invite them to visit us personally . . . find that a good number of them can be interested in working for us."

**Cause for Hope:** A few companies questioned in a recent CW poll say their problems this year "are much lighter than they've been in a long time." Offers a Pittsburgh official: "this year for the first time since the opening of the Korean War it looks as if we're going to fill our technical manpower requirements. Admittedly, we've put on more pressure this year, tried to get our lines out early. But that doesn't account for all the difference. There must be more graduates available."

Another West Coast manufacturer offers a reason for the general lightening of technical manpower restrictions. "The Army's taking fewer boys this year I guess. A lot of much younger fellows will be joining us this June. Some of them are draft-deferred; others just haven't been called yet. It makes a big difference in colleges, universities that have officer training programs. And we're reaping the benefit."

Others are hopeful, but more cautious. Says one personnel man: "It looks as though we'll meet our specifications this year, but you can never

tell right up until the last minute. There are too many factors that can swing the deal at the last minute. We're hopeful though . . . just as are most of the other chemical companies out this way."

Echoes a mid-Atlantic basic chemical producer: "Technical manpower's still a headache when you're expanding as rapidly as we have been over the past several years. It takes a minimum of 3 years to break most graduates in. But this year we'll have enough to work with . . ."

## COMPANIES. . . .

**Hercules Powder Co.** will lease (with an option to buy for \$3,625,000) the government-owned Missouri Ordnance Works. As builder and first operator of the plant, Hercules beat out American Cyanamid by exercising its option (*CW Newsletter*, April 10) to take over the plant from the U.S. Corps of Engineers "at the highest bid received by the government for the property." Capacity output is 42,000 tons/year of ammonia; rehabilitation work will start immediately. Just last week (*CW*, April 17, p. 20) Hercules revealed plans to build a jointly owned 45,000 tons/year anhydrous ammonia plant with The Alabama By-Products Corp. at Birmingham.

### More company incorporations:

International Research Corp. has filed a charter of incorporation in Dover, Del., listing capital at \$55,000. Baruch Gas and Chemical Co.,

Inc. has also filed at Dover, listing its capital at \$26,000.

Merac, Inc., plastic producer also at Dover. Capital listed: \$50,000.

**Dresser Industries, Inc.**, Dallas, Tex. (producer of chemical equipment) has purchased land to build a multi-million-dollar plant at Tulsa, Okla. Immediate plans call for construction of office buildings and warehouses, but company executives say eventual work will cover manufacturing facilities.

**Chemical Enterprises, Inc.**, New York, has exercised its option to buy all of the outstanding stock of nine fertilizer and equipment distributing companies in Louisiana, Texas, Washington. The units will continue to operate as affiliates of Chemical Enterprises. Purchase price: over \$1 million.

## EXPANSION. . . .

**Alloys:** Climax Molybdenum Co., New York, has completed its \$35-million expansion program at Climax, Colo. (*CW*, Feb. 6), will launch a new program of diversification into the field of alloys and new metals.

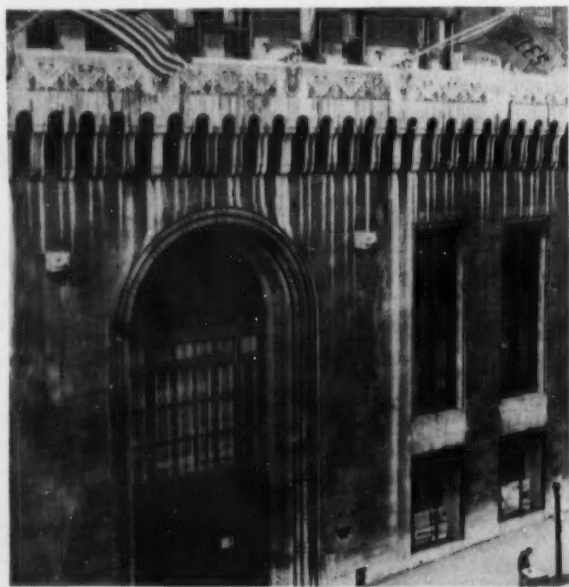
**Hydrated Alumina:** Aluminum Co. of America has completed work on the first of its series of chemical products plants at Bauxite, Ark. (The next unit is scheduled for completion in May.) Now produced: hydrated aluminas—used primarily in the production of iron-free alum, silica-alumina cata-

lysts, sodium aluminate, and heat-resisting glass.

**Chlorine:** Work on Hooker Electrochemical Co.'s \$12-million chlorine, caustic, hydrogen plant at Montague, Mich., has been completed. Comprised of eight major buildings, the plant will draw on extensive underground salt deposits for raw materials, should get into full production soon.

**Potassium Carbonate:** Allied Chemical & Dye Corp.'s \$2-million potassium carbonate plant at Syracuse, N.Y., should be completed by the end of summer; construction's proceeding on schedule. It's the latest in a series of Allied construction projects (running over \$1 million) to expand, replace alkali facilities.

**Uranium:** Aside from the presently acknowledged uranium deposit in the Polk County phosphate mines in Florida, the Atomic Energy Commission is confident that there are no other huge sources of uranium in the state, despite the fact that the Interior Dept. reports "unusually high radioactivity" in 11 other counties. "How large the phosphate rock uranium deposits are, we don't yet know," says Jesse C. Johnson, director of AEC's raw material division; "but we're highly optimistic." Florida operations in the Bartow area are currently processing 9 million tons a year of phosphate rock; untapped reserves may run to two billion tons. "That means the uranium potential is also high."



## Home Game Harbinger

ORIOLE BASEBALL fans in downtown Baltimore won't have to look farther than the Light Street entrance of the Mathieson Chemical Building to see whether the home game's called because of weather. Twin flag poles have been erected; one flies the American flag, the other the Maryland state banner. But on days when the home team's in town (and the game's going to be played) the Oriole flag will replace the Maryland pennant, will remain up until the game's over or called officially.



# U.S.I. CHEMICAL NEWS

April 24

★

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★

1954

## Organosodium Compounds Are Opening New Frontiers

Organosodium compounds, made in a liter flask or a 1000-gallon reactor, are opening new, economical routes to the synthesis of phenylacetic acid, dimethyl phenylmalonate, benzophenone, and many others, including organotin, -phosphorus and -silicon products.

The method uses sodium dispersions, which are prepared by suspending microscopic sodium particles (10-20 microns) in various hydrocarbons, such as toluene, xylene or kerosene. High speed agitation is used to disperse the molten sodium in the liquid hydrocarbon.

The organosodium compounds are prepared by reacting organic compounds with the dispersed sodium. Phenyl sodium, for instance, is made by metering chlorobenzene into the sodium dispersion. The minute particles permit the reaction to start immediately and give high yields. Aliphatic, aromatic and heterocyclic derivatives can be formed in this manner.

For more detailed information, write for U.S.I.'s new Sodium Dispersion Booklet.

## Germanium Is Refined To Almost 100% Purity

A new, simple process reportedly refines germanium to practically perfect purity. It is also being used to refine various metals, organic and inorganic substances.

Germanium from the process may well be the purest material in existence. It is said to have only one atom of impurity in ten billion atoms of the material—about the same as a pinch of salt in 35 freight cars of sugar.

## Rubber Process Improves Safety of Retreaded Tires

Retreaded tires reportedly can now give the same skid protection and traction as new tires. A new process puts skid resistance and traction into the rubber at the factory before it is shipped to the retreading shop.

The company claims that the new tread rubber gives 30 per cent more surface traction than retreads in wide use today, with at least equal tread mileage.

## Plastic Coating Protects Big Chemical Equipment

A plastic protective coating can extend service life and cut maintenance costs of large chemical processing equipment. The baked-on coating is said to resist exhaust gases containing corrosive chemicals and inhibit rust and blistering of metal surfaces.

Highly adhesive to metal surfaces, the coating is uniformly applied and then fused by baking. The coatings vary in thickness from 1/32 to 3/16 of an inch and form a continuous protective sheath over crevices. According to the manufacturer, cast iron duplex strainer bodies weighing 1,200 pounds have been protected in this manner.

## Use of Methionine Saves Lives In Study of Newborn Disease Caused by Rh Incompatibility

Shows Promise in Other Obstetrical Complications

Methionine shows excellent promise in the treatment of hemolytic disease (erythroblastosis) of the newborn, an often fatal disease caused by Rh incompatibility. In a preliminary study, 66.6% of babies whose mothers had taken

methionine were saved, as compared with 5.25% surviving for cases refusing the prenatal treatment. These percentages are based on cases classified as severe by the clinicians.

Hemolytic disease is accompanied by damage to the liver of the unborn child. Normal liver functions can be maintained only when the body obtains enough protein, and the amino acid methionine, a component of protein, is needed by the body to metabolize protein itself. Previous investigations have shown that methionine helps to protect the liver from damage, even when the protein intake is low. This led to the belief that methionine might be valuable in the treatment of hemolytic disease and other obstetrical complications associated with liver damage of the mother and newborn.

Cases involving many pregnant women suffering from Rh incompatibility were studied. Most of the women had lost children previously as a result of the disease. All were offered the chance to take methionine, but less than half decided to do so. Those not taking methionine were studied as a control group for purposes of comparison.

### Methionine Administered Orally

At the first signs of Rh-factor complications, the women who volunteered to take methionine were given 5 grams of the amino acid in capsule form each day (equivalent to that found in 5 quarts of milk). The researchers believed that the unborn offspring would use this extra methionine as a protection against liver damage. This treatment was continued until pregnancy was terminated. As mentioned previously, two out of

**MORE**

## Five New Intermediates Available to Industry

Five new chemical intermediates are available from U.S.I.: Allyl Acetone; Ethyl Chrysanthemumate; 2,5-Dimethyl Hexadiene-2,4; Ethyl- $\alpha$ -Allylacetoacetate; and Ethyl Diazoacetate. They are potential building blocks for such products as pharmaceuticals, perfumes, fungicides, insecticides and fine chemicals and themselves are intermediates in U.S.I.'s complicated 18-step industrial synthesis of allethrin.

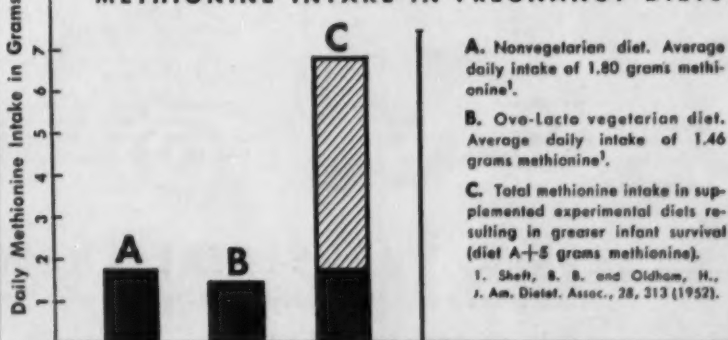
Except for Ethyl Diazoacetate, commercial and experimental quantities are available to industry. Ethyl Diazoacetate will not be available as such unless current studies show that it can be shipped and stored safely. However, U.S.I. has extensive facilities which can handle large quantities of the versatile chemical safely and is prepared to make these facilities available to other manufacturers for the synthesis of various derivatives.

Technical data sheets describing the intermediates can be obtained by writing Department D, U. S. Industrial Chemicals Co.

## Invisible Markings Made By Fluorescent Pencils

Fluorescent pencils are recommended for any place where invisible instructions or identification treatment is wanted. According to the manufacturer, markings are invisible on white or light surfaces, but will fluoresce a brilliant green when activated by blacklight.

METHIONINE INTAKE IN PREGNANCY DIETS



April 24

\*

# U.S.I. CHEMICAL NEWS

\*

1954

## CONTINUED

### Methionine Saves Lives

three newborn whose mothers took methionine survived, as compared with about one in twenty surviving when methionine was not taken by the mother.

#### Other Complications Studied

The authors also studied the value of methionine in treating other types of obstetrical complications associated with liver and kidney damage. These were toxemia of pregnancy, postdelivery shock and inflammation of the liver. The results in these studies were also encouraging.

Toxemia implies the presence of toxic substances in the blood. The tendency towards insufficient protein intake during pregnancy becomes more pronounced during toxemia. This condition is reported to cause more deaths than any other complication in obstetrics. In the work reported, a beneficial diuresis to alleviate the toxemia followed the administering of methionine to patients. Kidney function seemed to be improved. In some cases, this happened after ordinary medication had failed. Edema associated with impaired kidney function also was relieved after methionine had been given.

Methionine assisted in the treatment of postdelivery shock and inflammation of the liver. Postdelivery shock can bring about impaired functions of the liver and kidney which sometimes lead to permanent damage.

Obstetrics is one of the many fields of medicine where methionine is being used in increased amounts.



### Adhesives Set Under Water

Adhesives which set under water were recently announced. Said to give good adhesion to metals, glass, paper, fabrics and plastics, the new products remain pliable, yet retain their adhesive strength at temperatures ranging from -55 to over 250° C.

### Ointments Protect Skin From Chemical Irritants

Two new types of ointments which protect the skin against various industrial irritants have been marketed.

The first resists organic solvents and solvent-borne irritants. It contains a modified carbohydrate gum base. When dry, the protective gel is said to form a continuous elastic film which adheres to the skin.

The other type is designed to protect the skin from water solutions and water-borne irritants. Two creams of this type are available. They are described as plasticized combinations of ethyl cellulose and castor oil in mixed propanols with a water-repellent vanishing cream base. The creams form invisible, water-insoluble coatings on the skin which withstand normal washing with soap and water.

### Safety Instrument Runs Quick SO<sub>2</sub> Determinations

A portable instrument for quickly determining sulphur dioxide concentrations is said to be exceptionally accurate and easy to use. The maximum allowable concentration of SO<sub>2</sub> in working atmospheres is 10 ppm for an 8-hour exposure. The new device determines concentrations of from 0 to 50 ppm.

The manufacturer of the safety apparatus expects it to be valuable in such process industries as petroleum refining, chemical processing, and paint and pigment.

### New Dust Collector Holds Fine Particles

A newly developed dust collector is designed for applications where extremely fine particles are involved or where the material must be collected in a dry state.

The cleaning cycle is described as continuous, with the cleaning media being automatically reconditioned by a jet of high pressure air forced through the cloth.

## TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

**Tweezers** which operate on a plunger principle and can pick-up oddly shaped objects have been marketed. They are said to be ideal for highly polished or sterile pieces. (No. 1030)

**A new drug for ulcer treatment** has been introduced. Clinical and animal tests are said to have shown that the compound has a powerful effect in reducing the secretion of acid in the stomach, instead of merely neutralizing the acid already secreted. (No. 1031)

**Radioactivity absorbers** are available which can be used to determine energies of photons and beta radiations, check isotope purity, identify radioactive species, and count a radioisotope in the presence of another. (No. 1032)

**A new moisture meter** is said to measure surface moisture in powdered, granulated or fibrous material in less than 2 minutes and to be accurate to 2% of surface moisture as compared to standard air-dried surface moisture results. (No. 1033)

**A quick-acting electronic cleaner** for contacts, controls and tuners in television sets, radios and record changers has been developed. According to the company, the product eliminates noise caused by dirt from volume controls. (No. 1034)

**A new caulking compound** comes in tape form. Supplied in a variety of widths and thicknesses, the tape is described as both a corrosion inhibitor and vibration cushioner. It can be painted over, or even baked, after application. (No. 1035)

**Liquid resins** for use in the production of reinforced plastics tooling are available. The manufacturer states they can be used in combination with fiberglass fabrics in making spotting racks, checking fixtures and assembly jigs. (No. 1036)

**Thiophenol** is being produced in semicommercial quantities. It is expected to find use in such products as pharmaceuticals, dyes, polymerization regulators and oil additives. (No. 1037)

**A liquid synthetic rubber** spreads easily like paint and rubberizes at normal temperature. Designed for home and industrial repairs, the product is reported to form a flexible film that adheres to plastic, metal, wood, fabric and glass. (No. 1038)

**A pocket-sized magnet** can be used as a recovery tool by anybody who works with metal. The self-contained instrument can be attached to a rope or wire and lowered in vertical pipes, water, barrels and other inaccessible areas. (No. 1039)

## PRODUCTS OF U.S.I.

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Amyl Alcohol (Isoamyl Alcohol)  
Butanol (Normal-Butyl Alcohol)  
Fusel Oil — Refined  
Propanol (Normal-Propyl Alcohol)

### Ethanol (Ethyl Alcohol)

Specially Denatured—all regular and anhydrous formulas  
Completely Denatured—all regular and anhydrous formulas  
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Solox®—proprietary solvent—regular and anhydrous

### ANTI-FREEZE

Super Pyro® Anti-Freeze  
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### ETHERS

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Aroplax®—copolymer modified alkyds  
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Natural Resins—all standard grades

### INSECTICIDE MATERIALS

Allathrin  
CPR Concentrates: Liquid & Dust  
Piperonyl Butoxide  
Piperonyl Cyclonene  
Pyrethron® Concentrates: Liquid & Dust  
Pyrethrum Products: Liquid and Dust  
Rotenone Products: Liquid and Dust

### INSECTIFUGE MATERIALS

Indalone®  
Triple-Mix Repellents

### INTERMEDIATES

Acetoacetanilide  
Acetoacet-ortho-chloroanilide  
Acetoacet-ortho-toluidide  
Acetoacet-para-chloroanilide  
Ethyl Acetoacetate  
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Ethyl Sodium Oxalacetate

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Special Liquid Curbay®  
U.S.I. Vitamin B<sub>12</sub> and Antibiotic Feed Supplements  
Vocatene® 40

### OTHER PRODUCTS

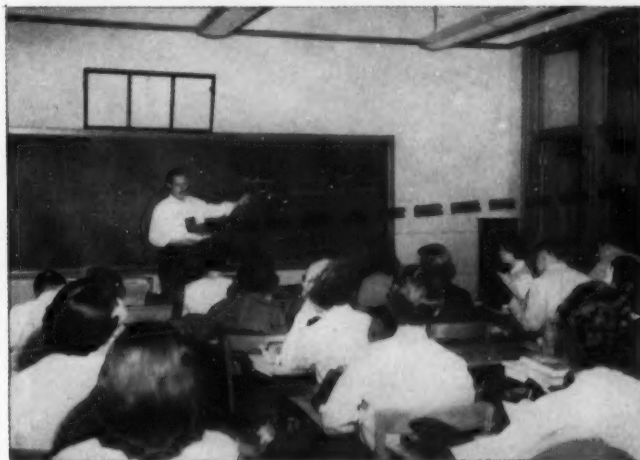
Acetaldehyde  
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Ethylene  
IPC (Isopropyl-N-Phenyl Carbamate)  
CIPC  
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Methionine (Pharm.)  
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STUDENTS IN SESSION: Eleventh-graders get a news-format insight on pharmaceuticals.



## Selling Youngsters on the System

Persuaded that Indianapolis children know little about the industrial and business life of the city and have (at best) a hazy idea of how the American economic system actually operates, Indianapolis chemical men are helping to underwrite a novel training program. Meat of the plan: production of instructional material for pupils from grade 4 to 12—in book, film-strip, news magazine form.

Genesis of the program was a recommendation in July '51 to the Indianapolis Board of School Commissioners by H. L. Shibley, general superintendent of education. With the board's approval, an industrial advisory committee was appointed, composed of representatives of industry, labor, press, educational systems. Chemical representatives: F. D. Randall, assistant manager, public relations, Eli Lilly and Co.; Phillip G. King, manager, Pittsburgh Plate Glass Co.

Facing the committee was the question of material available as teaching aids. Historical sources about Indiana and Indianapolis existed in abundance, but there was a complete dearth of material relating to local business and industry. Decision: to make this data available to all children in the public schools would be an appreciated community relations gesture, would someday produce better-educated citizens.

The current events format was adopted as the quickest way to realize immediate benefits for students in the upper grades as opposed to production of material in a more permanent form. First to come off the press:

an eight-page document (for use in grades 7 and 8) devoted to department stores, related industry. Next out: an issue related to banks, banking, an issue concerned with pharmaceuticals, producing firms.

The latter (*see cut*) was compiled by a special committee composed of drug executives, medical and health officials, public relations directors. Its pitch is simple, geared to the vocabulary of high-school readers. Built on the story of Nancy Jones (a teen-ager who visits her neighborhood druggist with a prescription), the discovery, development, production and distribution of a new drug is outlined, linked to quality control, laws governing the pharmaceutical industry, sources of medicinals. Local pictures, diagrams tack the story down to everyday Indianapolis life; social and economic problems arising out of industry's association with local citizens are discussed.

That the children who acted as guinea pigs for the first issues of "Indianapolis at Work" appreciate their new slant on business is evidenced by replies to questionnaires. When quizzed as to how their ideas had changed through exposure to the booklets, 60% of the 1,000 pupils concerned said they'd switched position on the question of profits in the pharmaceutical industry, now understood "more about the place of labor unions," had a clearer insight into the true ownership of publicly owned corporations. Over 92% of the pupils claimed they'd learned something from the training program; 51.7% averred they'd gained a great deal.

Cost of the project to industry during the two and one-half years of operation has been relatively light (this year's budget runs around \$14,000). Some 3,287 copies of the pharmaceutical issue were distributed to social studies classes this semester; a typical press run contains 15,000-20,000 copies.

Teachers are uniformly enthusiastic about the intent and operation of the program. Accompanying each issue to date has been a teaching manual; consultants and department heads are continually working with educators to explain what industry is attempting to convey.

An issue on the subject of chemical plants in the Indianapolis area hasn't yet been published—but it's on the list of subjects planned for future study.

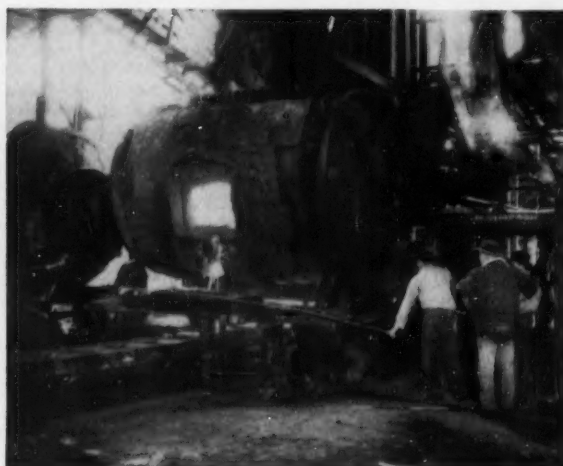
An interesting sidelight: since the advent of the pharmaceutical issue, many students say they're now considering the pharmaceutical business as a vocation. Indianapolis pharmaceutical firms in the years ahead may find themselves well staffed with employees who received their first impression of the industry through high-school contacts.

Capitalizing on the need for a "better understanding and appreciation of the American way of life" at a grade-school as a means of promoting firmer community relations isn't new. But a consolidated attempt by industry to assume part of the responsibility for bettering educational conditions hasn't often been tried. Testimony from Indianapolis would suggest it's a project well worth the effort.





SHELL OF A HILL: At 750 ft., work is in progress to deepen Morgan Mound to 850 ft.



PHOTOS—EASTERN PUBLISHERS SERVICE

. . . increase production now standing at 5,500 tons copper, 70,000 oz. gold 24,000 oz. silver, 60,000 tons pyrites yearly.

## Fabulous History, Promising Future

Twenty four miles by road from Rockhampton, one of Australia's major cities in the state of Queensland, is the Mount Morgan copper mine. Once a fabulously rich gold mine, its discovery is still the subject of argument in drawing rooms and hotel bars, though it's generally conceded that a stockman named Mackinley stumbled on the treasure in 1870. But the significant saga of Morgan may yet be written. Today's ore reserves stand at 14.5 million tons; the pyrites mined there are equal to one-third of Australia's total yearly production.

Since Australia's fundamental problem in any economic development of its chemical industry is provision of cheap basic chemicals manufactured locally, the importance of "The Golden Hill" is clearly apparent. But local sulfuric acid producers—discouraged by the present abundance of sulfur—are not hastening to convert their plants to the use of pyrites instead of brimstone. Nub of their problem: the remoteness of Australia from probable theaters of war doesn't encourage foreign investment of capital; most Australian companies don't earn profits at a level sufficient to finance such conversion out of earnings; recent harden-

ing, tightening of credit makes capital harder to obtain.

Mount Morgan, Ltd. isn't in any position to finance the conversion either. Commencing activities in 1929 (under the present corporate name) the company staggered through the depression years, received a transfusion in the shape of loan from the Queensland Mines Dept. in 1932. Business has developed slowly, last year reached a point where the company's nominal capital had been raised to £3.7 million to meet the expansion that has taken place. But though the mine and town today are in a stronger position than at any time since solid chunks of gold were trundled down the hill in hand trolleys, there's very little chance of major support for sulfur producers in the very near future. The government may step into the breach; but it's currently bogged down in tariff problems, increasing pressure from importing firms who stoutly oppose any change in duty restrictions.

That the Morgan Mine will be able to support in large measure the foundation of a stable basic chemical industry in Australia is a certainty. But that the Australians will be able to capitalize soon on their opportunity is unlikely.

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PHYSICAL . . . . . Yellow to yellow-green solid of high purity

PROPERTIES . . . . . Freezing Point  $275^{\circ}\text{C. min.}$

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Solid —approximately 2.0

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for 56 Years



WIDE WORLD

FARMER, MURDOCK, PETERSON, RODGERS, BEESON: Though deadlock looms in Congress, new NLRB line-up is busily...

## Breaching Old Blockade for Industry

Shining with a brighter lustre this week are management's hopes for a gain in corporate liberty as the result of what the National Labor Relations Board, with its Eisenhower-appointed majority, is formulating in the way of new ground rules on union relations. If the board's new policies are put into effect in the form of rulings that will hold up in court, chemical companies can expect to realize considerable savings by avoiding many of the snarl-ups in labor law red tape and litigation that have come to be recognized as one of the biggest blockades in the path of businessmen today.

This blockade isn't likely to be breached by Congress this year, despite the President's recent message (CW, Jan. 23, p. 34) urging certain changes in the Taft-Hartley labor relations act.

**Small Fry Excluded:** In brief, NLRB's new policies would emancipate management from the necessity to expend much time, executive talent and money in dealing with certain labor complications that the board feels can be mitigated or prevented.

For small companies, small plants, and small units in some large plants, the plan is for the NLRB to adopt a "hands off" attitude. If disputes in such places can't be settled by the parties concerned, then state and local agencies will be able to step in without duplicating the efforts of federal fact-finders and peace-makers.

This would leave NLRB in better position to deal with labor problems at larger plants. Guy Farmer, the 41-year-old Washington lawyer whom Eisenhower selected as board

chairman last July, is exasperated at the fact that it now takes an average of 200 days to process an unfair labor practice case.

**Strike Protection:** For chemical companies with large plants—and particularly those firms whose products are essential to industry and defense—the board's new program promises relief from a number of labor snags that have taken a doleful toll in production and profits over recent decades.

Among these situations on which help is in prospect:

- A recognition strike, called by a union in an attempt to force the company to bargain with that union before the union has won an election and been certified by NLRB.

- Secondary boycotts, in which a union tries to keep one employer—with whom there's no dispute—from buying, selling or using the products of another employer—with whom there is a dispute.

- Hit-and-run strikes, in which a union pulls some men off their jobs for a short period, then sends those men back to work and orders another group to stay home.

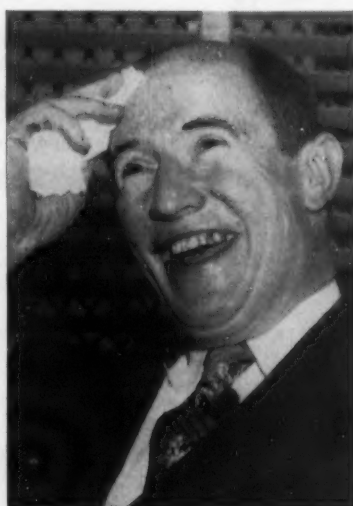
- Slowdown strikes. The board holds that an employee can't work and strike at the same time.

- Wildcat strikes, particularly when the union agreement contains a no-strike clause.

- Jurisdictional strikes, in which one union is at odds with another union.

**Republican Revisions:** What NLRB is doing in many cases is to review the rulings that were propounded in New Deal and Fair Deal days when the board had a Democratic majority. In the revised rulings, management's hand is being strengthened, generally. Farmer and the two other board members named by Eisenhower—Philip Ray Rodgers and Albert Beeson—say their objective is not to favor management over labor, but only to straighten out some "pro-labor" kinks in the old board's policies.

Prime example of this comes in a case that could affect almost any chemical producer, large or small. It's the McAllister Trucking case, in which the board is reviewing the five-year-old "Conway doctrine." This doctrine, laid down by a Democratic-ruled board, gave an o.k. to union-employer contracts even though they apparently permitted secondary boycott activities specif-



WIDE WORLD

REP. McCONNELL: Even in election year, a firm stand toward labor unions.



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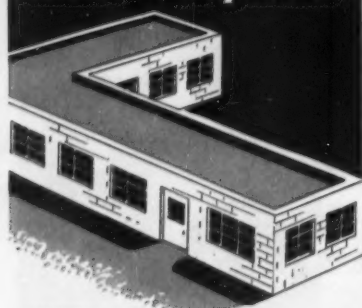
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**HOLDOVER BOTT:** On secondary boycotts, bosses' complacency is no excuse.

ically banned by the T-H law. The contracts concerned are chiefly those negotiated by locals of the International Brotherhood of Teamsters (AFL) containing the so-called "hot cargo" clause. The Teamsters have thousands of such contracts, providing that their truck-driving members won't be required to handle "unfair goods"—that is, articles produced by firms that are being struck by either the Teamsters or other unions. Thus any industrialist whose raw materials or finished products are hauled by truck could be tied up by a "Conway doctrine" secondary boycott.

Under present policy, this is considered a legal practice if the truckers' contract specifically permits it. But with the board now manned by a three-to-two GOP majority, McAllister—a Nebraska firm that the Teamsters are "mad at" because it doesn't want to bargain with that union until a majority of its employees join the Teamsters—has asked NLRB to review and reverse the old decision. At a hearing, McAllister attorneys argued that contracts could not be written to supersede the law; union lawyers countered that to change the interpretation now would be disruptive to labor relations. The board's own general counsel, George Bott, urged NLRB to reverse the Conway doctrine to forestall a string of abuses "which Congress intended to ban when it enacted the Taft-Hartley law."

**Pro-Labor Holdovers:** The two remaining NLRB members appointed by former President Truman are regarded as being more solicitous for unions' rights and prerogatives. For example, in dissenting from the

board's recent decision against hit-and-run strikes, Abe Murdock—former Democratic senator from Utah—protested that the ruling "goes far to deprive employees of rights guaranteed them by Congress." The other holdover is Ivar Peterson, who was executive secretary to Sen. Wayne Morse (Ind., Ore.) for five years and before that was assistant general counsel for the old NLRB.

Eisenhower is pushing hard for a new Taft-Hartley bill, but it doesn't look as though Congress will give him one—and if it does, the bill may not be anything like what the President wants. The Administration's middle-of-the-road recommendations are acceptable to the Senate, but the majority of Rep. Samuel McConnell's House labor committee favors tough new restrictions on union activities—and if such provisions get through in a new bill, the President is likely to apply a veto.

Thus while Taft-Hartley changes are stalled on Capitol Hill, the NLRB is making new interpretations that may well turn out to be of more practical benefit to the industry than the proposals being debated in Congress.

## Opposed or Unmoved?

Ever since June '52, Rep. Frank Smith (D.-Miss.) has been trying to repeal the Buy American Act. Last January the Randall commission declared itself in favor of modification of the act, and in the last week of March the President endorsed that recommendation in his tariff message to Congress. This week, the Manufacturing Chemists Assn., wondering what effect such legislation would have on the industry, is quietly and informally polling member reaction.

On the face of it, a bill to amend this 20-year-old law—passed on the last day of the Hoover Administration—seems unlikely to stir up much emotion in the chemical industry. When Du Pont's Fred Singer broached the subject before the MCA Trade Policy Committee, he got no response.

The reason for the industry's apparent disinterest is as fundamental as a Baptist revival: no one, it seems, stands to get hurt. The BAA, conceived in the desperate, beggar-your-neighbor days of the Great Depression, requires government procurement agencies to give preference to domestic suppliers, except where the domestic price is excessive. The agencies generally have taken "excessive price" to mean 25% above the price of foreign suppliers.

The heart of the matter seems to

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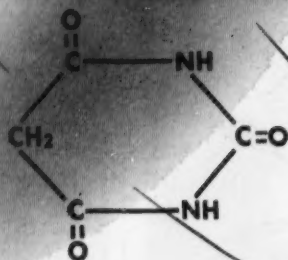
THE *Borden* COMPANY  
CHEMICAL DIVISION





KAY-FRIES

# barbituric acid



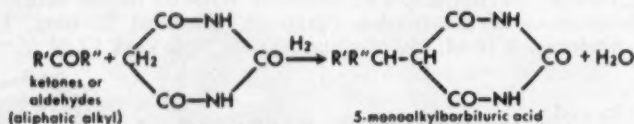
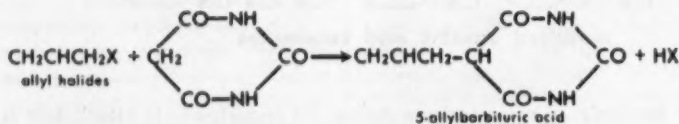
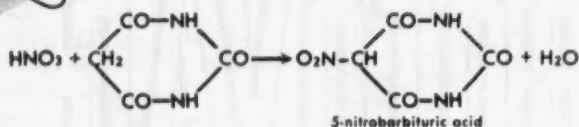
## PROPERTIES

molecular weight: 128.09  
melting point: decomposes at 245°C±  
solubility: soluble in hot water, slightly soluble in alcohol, soluble in ether.

## KAY-FRIES SPECIFICATIONS

color: clean white to yellow white powder  
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loss on drying: .5% max. ash: 1.00% max.

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WIDE WORLD

MISSISSIPPI'S SMITH: Buy American is an anachronism.

be that, while the government is a pretty fair customer of the chemical industry, its purchases of chemicals have seldom attracted foreign bidders.

Characterizing the BAA as an "anachronism" and a "psychological liability" in our relations abroad, the Mississippi congressman says modification of the law would: (1) bring economy in government expenditures (BAA is estimated to have cost taxpayers up to \$10 billion since 1933); and (2) promote Eisenhower's "trade, not aid" program.

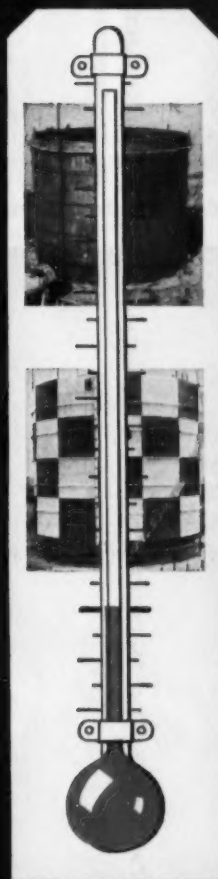
Rejecting outright repeal, the Randall commission asked for an amendment based on reciprocity. It would give the President authority "to exempt from the (BAA) provisions . . . the bidders from other nations that treat our bidders on an equal basis with their own nationals."

The chances for BAA modification passing Congress are touch-and-go. Against its chances: (1) the fact that congressmen are disinclined to vote for any measure that could be remotely construed by the folks back home as "importing more unemployment" and (2) the powerful opposition of the National Electrical Manufacturers Assn. For its chances: (1) determined support from top advisors in the State Dept. and from FOA administrator Harold Stassen and (2) the feeling in government agencies that the law is unnecessary and difficult to administer.

By the time the issue comes to a head in Congress this summer, the chemical industry will have made up its collective mind—whether it is opposed or indifferent to Buy American.

Chemical Week • April 24, 1954

from the **ARCTIC** to the **TROPICS**



more than

**130**

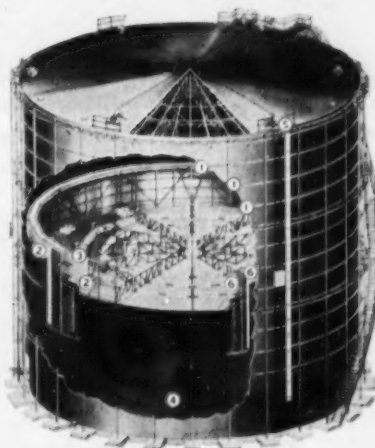
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This 100% dry seal gasholder (no water, no tar, no grease) has proved itself under every condition of climate and temperature. Because of the seal and the simple operating mechanism, operating costs have been entirely eliminated. Comparison of maintenance expense by owners of Wiggins gasholders also shows remarkable savings. Companies who have converted old-type gasholders to the Wiggins advantages have been able to enjoy similar savings. Write for information.

**PISTON RISES NEARLY TO TOP—MINIMUM OF WASTE SPACE  
CAN BE BUILT ANY SIZE • NO CONTAMINATION OF GAS**

1. Space above piston completely ventilated
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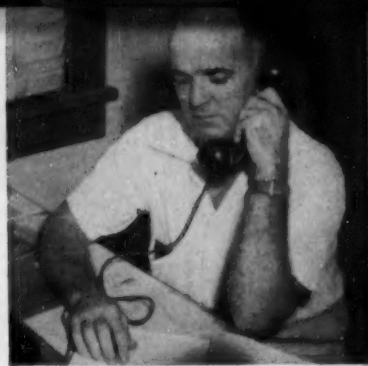
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**MOCK DISASTER:** Smoke plumes as Texas City test begins; operator quickly relays coded call for help to plant committee man.



**FAST ACTION:** Firemen arrive minutes after the call, start wetting down area with water hose while awaiting foam equipment.

## Teamwork to Thwart Disaster

Preventing disaster is a prime concern of all chemical executives, ever aware that their plants, often clustered together for sound economic reasons, are specially vulnerable to fire, explosion or other catastrophe. That's why chemical men are constantly seeking better ways to cope with any such emergency, and this week are looking at Texas City—which learned the hard way and now has a model organization for mutual aid.

This Industrial Mutual Aid System, spawned by the 1947 disaster, is set up to meet any emergency. All chemical companies participate, team up with police and fire departments, the medical association, hospitals, radio stations and newspapers, telephone and utility companies, the highway patrol, the military and the Red Cross disaster committee.

**Chemical Teamwork:** Taking the lead in organizing IMAS were Texas

City chemical makers under the chairmanship of Carbide's Fred Randall. Also in on the project: Pan American, Monsanto, Tin Processing Corp., Republic Refining, Sid Richardson Refining, and Texas City Refining.

Basic purpose of IMAS is to help any member company beset by an emergency beyond its own control. A call to headquarters dispatches personnel and equipment from other plants. But to skirt the possibility of



lawsuits, no help is sent unless it is specifically called for; only authorized IMAS personnel may enter an emergency area; only employees of the plant in trouble may enter the plant itself.

Company lawyers required these stipulations to forestall any legal difficulties as a result of employees' fighting fires or doing other emergency work outside their own plants. (By joining IMAS, an organization incurs no new legal obligations, but neither is it relieved of its rights, responsibilities and liabilities.)

Four committees underpin IMAS in action:

- The communications committee handles phone calls—and radio calls—to the central police station, which is the dispatching station for all incoming and outgoing messages. (Messages are coded to signify the extent of the disaster and also to prevent interlopers from issuing false alarms.)

Another function of the committee is to minimize panic and allay fears of employees' families. Method: all information released to press and radio is monitored.

- The traffic control committee sets up road blocks, detours traffic, governs traffic in and out of member plants, and checks personnel authorized to enter plants.

- The medical committee gets doctors and nurses to the scene, provides ambulances and medical supplies, cares for and evacuates casualties, and alerts hospitals.

- The equipment committee maintains fire-fighting equipment, stocks

of gas masks, stretchers—can send what's needed from any plant at a moment's notice, maintains in addition lists of the day and night phone numbers of people charged with the responsibility of making it available.

Company representatives and other committee members meet monthly to appraise the emergency procedures developed, to chart tests and drills, determine weaknesses in the system, and to conjure up more efficient and effective protective measures.

Only once, fortunately, has the organization been called into emergency action—when a waterfront oil tank of Sid Richardson caught fire. IMAS functioned smoothly, kept the blaze confined to a relatively small area, prevented casualties. But, to keep the group in gear, simulated fires and explosions have been set at Pan Am and Texas City Refining at regular intervals.

Such dry-runs serve to pinpoint weaknesses, strengthen the entire organization setup.

Actual fires or simulated fires, actual explosions or simulated explosions, all serve a dual purpose. Chemical executives reap dividends in terms of reassurance—that neither their employees nor their plants are as vulnerable as they would otherwise be. And employees (of which there are 8,000) as well as Texas City residents gain new confidence in industry. Said one Texas Citian last week: "I know chemicals are dangerous. But I know, too, that our plants here are just as safe as they can be made. That makes me feel good . . . and good about the companies."



CRITIQUE: Industry men discuss test results with Texas City officials.

# SULPHURS

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## Stauffer

CHEMICALS

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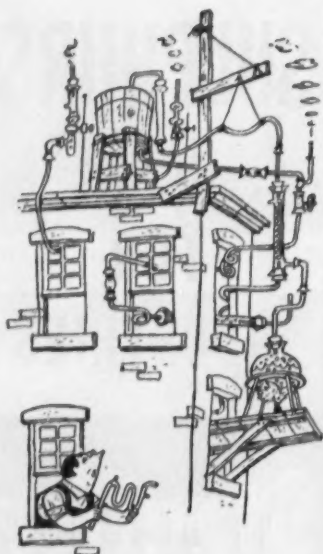
Sulphur, an elemental raw material, is consumed at a rate of over 1,800,000 short tons per year. The major industry-consumers of sulphurs are expected to expand their sulphur requirements. Having met similar situations of progress ever since 1885, Stauffer maintains its facilities at a level to guarantee a large selection of sulphurs delivered with satisfactory technical services. Supplying the agricultural, pulp and paper, rubber, and other consuming industries with sulphurs suited for each, Stauffer is offering a complete line designed to meet every demand.

Call on Stauffer. The products and services will be the best at the most reasonable cost.

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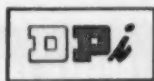


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We've been making Eastman Organic Chemicals for 35 years and there are over 3500 of them which we supply regularly to science and industry. When you need special organics in quantity, you'll usually find it cheaper to make use of our experience and equipment than to try unfamiliar syntheses on your own hook.

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## Vehement Vanguard

Chemical industry spokesmen are in the vanguard of the opposition to the "trade, not aid" program espoused by the Administration (CW, April 10, p. 13); and even though the tariff fight is just getting under way in Congress, outlook this week is that most of the industry's warnings will be heeded.

Among recent pronouncements by chemical executives:

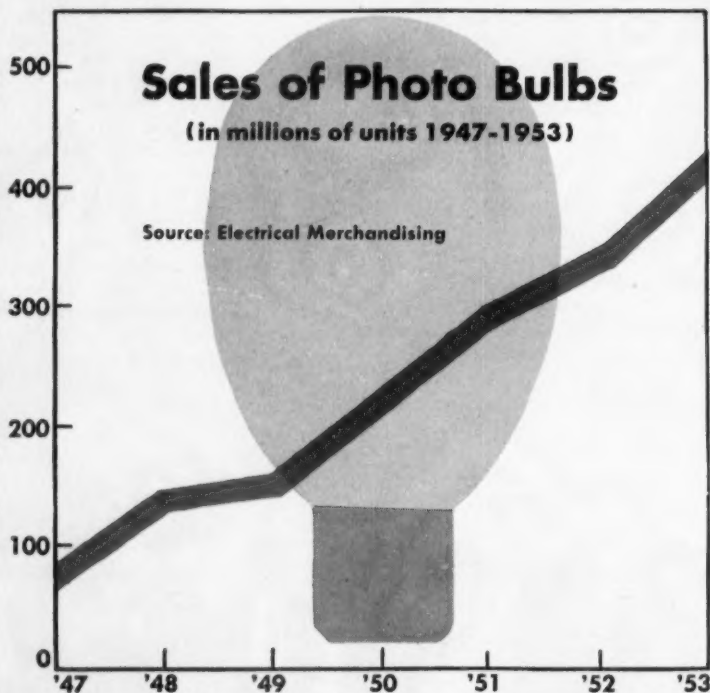
• Speaking in New York before the Hudson-Mohawk Council on World Affairs, Pres. Cary Wagner, of the Synthetic Organic Chemical Manufacturers Assn., declared that a protective tariff on chemical imports is "absolutely necessary" if the industry is to continue its remarkable contribution to U. S. economy. He pre-

dicted the industry will spend a billion dollars on research by 1959.

• At Richmond, a Du Pont vice-president, Henry B. du Pont, told the Virginia State Chamber of Commerce that tariff-trimming efforts to help allied nations' economies must not handicap or impede the development of those domestic industries that are essential to the national security; "our industrial strength must be sufficiently robust to meet the challenge of any enemy."

• John Powers, Jr., senior vice-president of Chas. Pfizer & Co., called for a stricter antidumping law in his speech to the Salesmen's Assn. of the American Chemical Industry. He predicted that with imports increasing, this country is likely to have more trouble with dumping of chemical products.

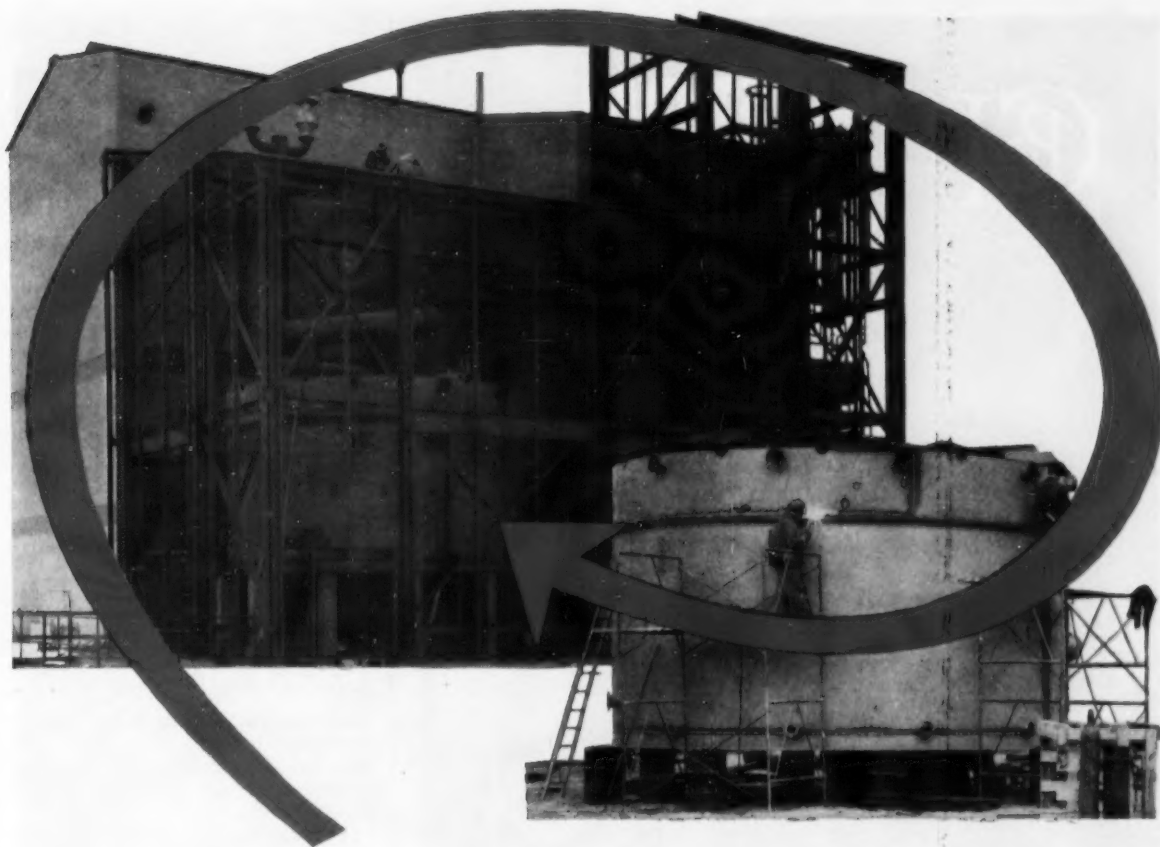
## IMPACT



## No Flash in the Pan

THE CAMERA CLUB craze last year chipped into a \$58.8-million sales market for photo bulb manufacturers. Unit sales were 425 million; industry spokesmen predict the rate will double in five years—to a billion lamps a year. In terms of chemicals consumed, the market should prove a boon to

chemical makers. Standing to profit most: zirconium producers (1-2 mg./bulb), isobutyl methacrylate producers (20-300 mg./bulb), aluminum producers (Press 25 takes 40 mg.), oxidizing agent suppliers, potassium perchlorate manufacturers, vehicle makers, (isobutyl ketone, amyl acetate, etc.).



## **BLAW-KNOX puts the skids under a hazardous project to increase Honeymead's capacity**

The problem at Honeymead Products Company was . . . how to add solvent extraction facilities, by assembling and welding metal equipment, to an operating plant using volatile, inflammable solvent.

Honeymead is a fast-growing Minnesota producer of soy oil and meal. Extraction of oil from soybean flakes requires the use of hexane solvent. Cutting, welding and assembling the world's largest Rotocel extractor and integrating it with the existing vapor-filled equipment without interrupting operations necessitated a unique engineering approach.

Blaw-Knox fabricated the 500 ton per day Rotocel, 24 feet in diameter, and distillation equipment four stories in height at a safe distance. As each unit was completed, it was lowered onto cribbing and skidded carefully into place.

Eight months from the start of this project, tie-in of the new facilities with the existing meal-preparation equipment was completed. Integration of these facilities, start-up, test runs and adjustments were completed in two weeks—procedures normally requiring a month. This rapid conversion saved the firm many thousands of dollars.

The solution to Honeymead's problem was the unified design, engineering and construction of equipment, and, more important, a method of operation which enabled the company to maintain the income from its existing plant almost entirely throughout the period of construction.

This is the type of thinking you can expect from Blaw-Knox. Put it to work on your next project. Call Blaw-Knox early in the planning stages.



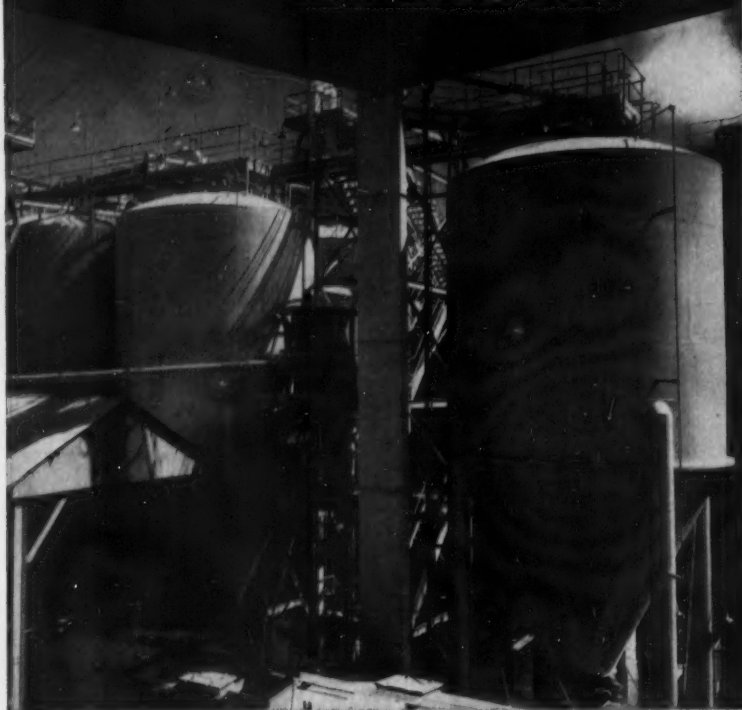
**BLAW-KNOX COMPANY • CHEMICAL PLANTS DIVISION**

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Chicago 4	2173 McCormick Bldg.	Pittsburgh 19	3271 Alcoa Bldg.
Cleveland 15	2261 Midland Bldg.	Salt Lake City 4	573 West 17th South St.
Detroit 26	1572 Lafayette Bldg.	San Francisco 4	1571-200 Bush St.
Havana	402 Abreu Bldg.	Seattle 1	1373 Henry Bldg.
Houston 2	2169 C & I Life Bldg.	Tulsa 3	1672 Hunt Bldg.

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B & I . . . . .



**ILLINOIS' BISHOP:** For 'fair, reasonable competition,' a new import curb.

## LABOR . . . . .

**Labor and Protection:** Where unemployment has tinged the fringes of the chemical process industries, you find sudden sentiment for protective tariffs. Latest example:

• Speaking for several hundred unemployed fluorspar workers in southern Illinois and western Kentucky, Regional Director Grover Duty of District 50, United Mine Workers, called on those states' representatives in Congress to "put an end to the cut-throat competition from cheap foreign imports." At about the same time, Congressman C. W. Bishop (R., Ill.) introduced in the House of Representatives a bill "to encourage and assist the production of strategic and critical metals and minerals." Bishop holds that Congress should re-establish the principle of "fair and reasonable competition between foreign and domestic producers," particularly in the case of strategic materials that could be imported only with difficulty, if at all, during a war. Fluorspar imports, Duty insists, should be curbed through some kind of an administrative check valve, in the form of either higher tariff rates or an import quota.

Meanwhile, the chemical industry stayed in step with the rest of the U.S. economy, with a decrease in number of new layoffs helping to level off the unemployment curve. Labor Secretary James Mitchell sees cause for optimism in the fact that unemployment increased by less than 2% last month to a total of 3.7 million, but adds that a shorter work-week has reduced the average weekly



# Ever see a gum that gels when it's heated?

Methocel does . . . and in doing so, it provides the answer to some interesting industrial problems

You don't have to process leather or make ceramics to enjoy the benefits of Methocel® (Dow methylcellulose). In addition to its binding applications, this synthetic gum is successfully serving many industries as a valuable thickener, suspending agent, emulsion stabilizer and film former.

If you need an economical *thickener*, a two- to three-per cent solution of high-viscosity Methocel will thicken water so it will hardly flow. As an *emulsion stabilizer*, Methocel acts as a protective colloid. As a suspending agent, it minimizes settling and caking of dispersed solids in aqueous systems. The tough, colorless coatings formed by low-viscosity Methocel make it an ideal material for boxboard sizing or greaseproof packaging.

Gels when heated, soluble in water, inert, odorless and tasteless—Methocel is indeed a unique gum. For more information and a free sample write to THE DOW CHEMICAL COMPANY, Midland, Michigan.



## SEND FOR YOUR EXPERIMENTAL SAMPLE

THE DOW CHEMICAL COMPANY  
Dept. ME 1192B, Midland, Michigan  
Wide viscosity range of Methocel is available—please indicate use field \_\_\_\_\_  
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Ceramic glazes for fine dinnerware and tile are hardened and held for firing by using Methocel as a basic ingredient . . . it acts as a "fugitive" binder which fires away cleanly.

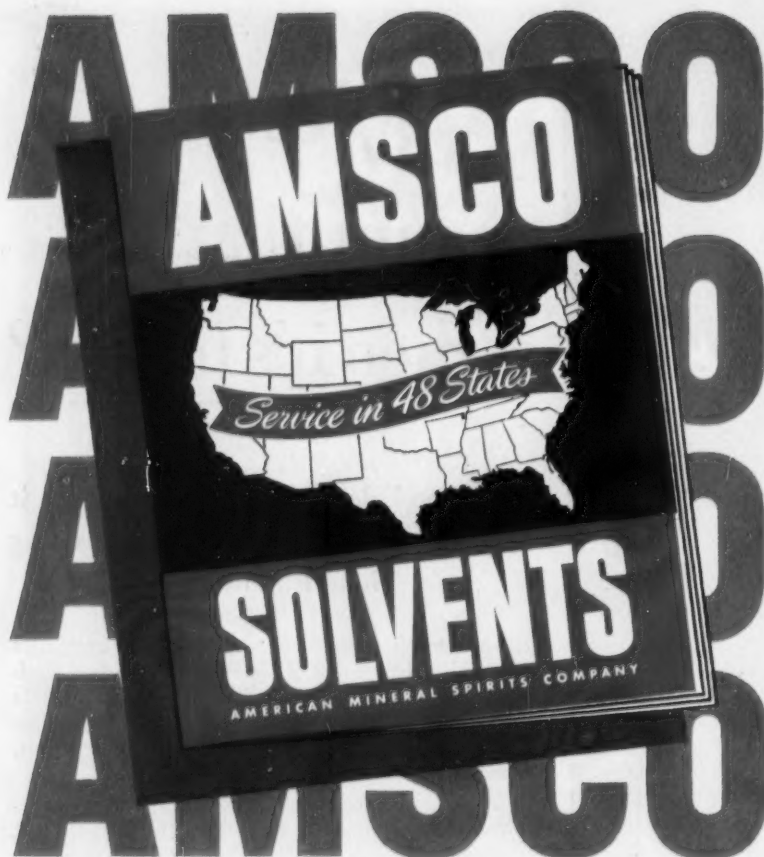


In the leather industry, pastes made with Methocel gain maximum bonding strength with heat to save time, money, and to improve the quality of hides being processed.



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## Free guide for solvents

This handy, time-saving reference guide for selecting petroleum solvents is yours for the asking. It contains a comprehensive list of aliphatic naphthas, paraffinic hydrocarbons, and aromatic hydrocarbons and solvents together with their typical properties all condensed into a file-type folder for easy reference. Saves time—guards against buying errors. Send for your free copy today!

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B & I . . . . .

earnings of hourly paid employees.

**Strikers Lose Jobs:** In West Virginia and in Texas, AFL construction workers' strikes have retarded progress on chemical expansion projects. Also on the chemical labor relations front: a strike by maintenance men showed a chemical company that it could get along with 94 fewer of those employees.

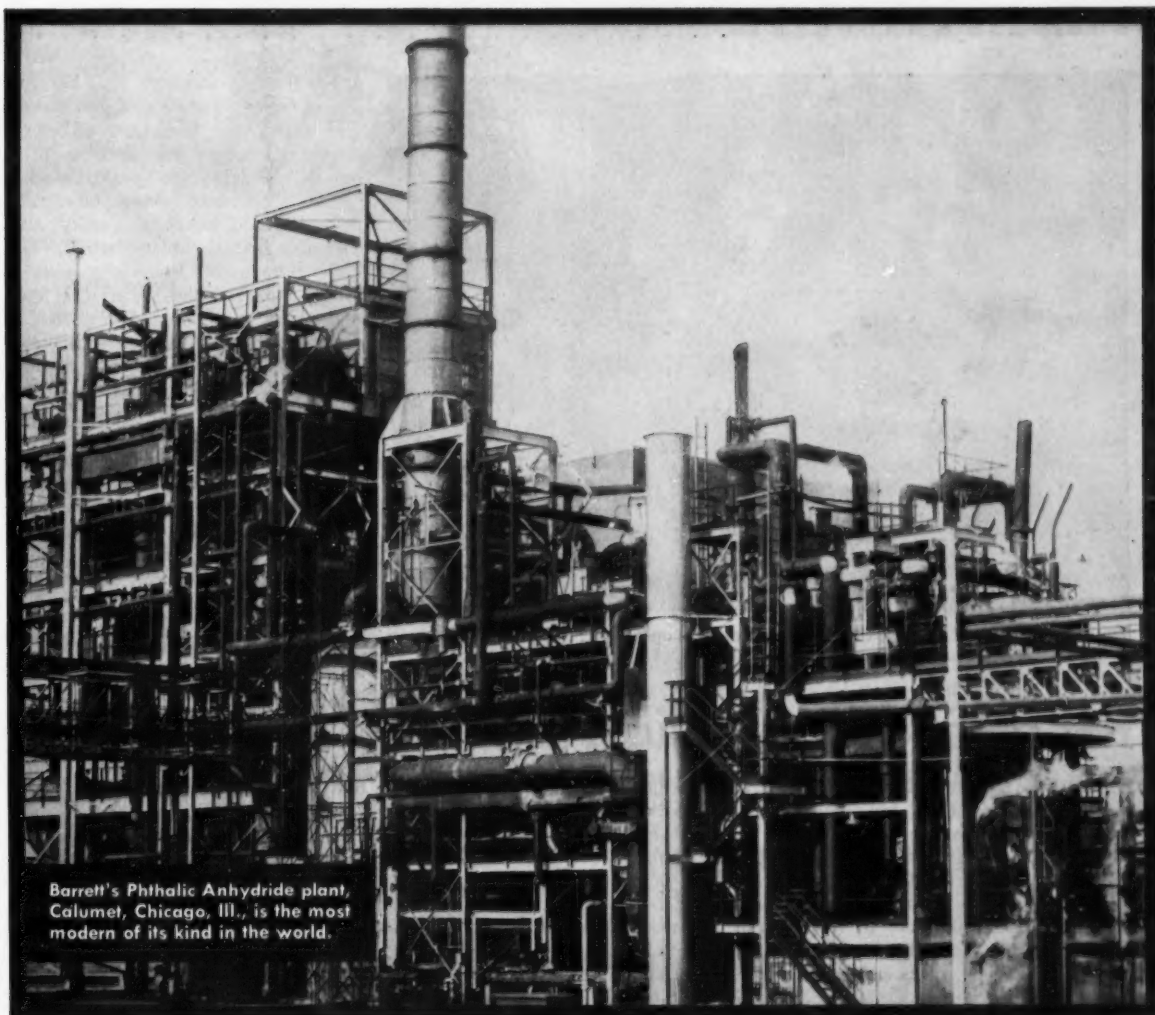
• Plant Manager Birney Wright of Mathieson's ammonia works at Morgantown, W. Va., says that 94 maintenance workers and 64 production workers are being furloughed—partly because of shutdown of the formaldehyde and hexamine sections, partly because of delay in resuming caprolactam production, and partly because the recent strike by about 240 AFL maintenance men gave the management experience that "served to confirm the conclusions already reached in earlier (efficiency) studies" begun last December to find ways of reducing production costs. The wage dispute, in which the maintenance workers are asking for a 20¢/hour increase, was still unsettled last week, but the AFL maintenance men and the District 50 production workers were on the job.

• A strike by about 800 AFL construction laborers has stopped work at two construction projects in northern West Virginia—Columbia-Southern at Natrium and Solvay Process Division of Allied Chemical at Round Bottom. Some 3,500 other construction workers are honoring the picket lines.

• Another 5,000 construction workers have been idled in the Orange-Port Arthur-Beaumont area on the Texas Gulf Coast by the strike of 600 AFL ironworkers who want their pay rate boosted 25¢ to \$3.05/hour. Chemical jobs halted: expansion of Du Pont's gigantic Sabine River Works at Silsbee; Du Pont's Beaumont plant; Jefferson Chemical in mid-Jefferson County. Also affected: Pure Oil refinery, Magnolia refinery, and the new plant of the East Texas Pulp & Paper Co. at Evadale. Work continued without interruption at the polyethylene plant being built for Spencer Chemical at Orange.

• **Employee Bonus:** For employees of Pittman-Moore Co., pharmaceutical house in Indianapolis, the first year of their company's "Share of Production" plan netted them bonus checks that averaged 7% of their regular earnings for the 12 months. Payments, mailed out this week, were based on productivity increases rather than on company profits.





Barrett's Phthalic Anhydride plant, Calumet, Chicago, Ill., is the most modern of its kind in the world.

## First name in Coal-Tar chemicals... last word in Phthalic production

Because of ever-widening use of Phthalic Anhydride, Barrett last year launched a large scale expansion program — both in increased production and more extensive research. One of the most notable developments at Barrett has been the addition of the Chicago Phthalic Anhydride plant. The most highly instrumentized Phthalic plant in the world, it brings production up to new high levels of automation — and assures an end product of unexcelled purity.

Because of Barrett's position as the world's leading producer of coal-tar chemicals, we are able to serve your

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*Barrett Phthalic Anhydride is available in both flake and liquid forms, whichever better suits the customer's convenience.*



# BARRETT CHEMICALS

CHEMICAL PROGRESS WEEK, MAY 17-22 • A BETTER AMERICA THROUGH CHEMICAL PROGRESS



**WORLD'S LARGEST FLUSHER:** Watching operations, General Manager Thompson, Vice-Pres. Knaggs.

## King-Size Lilliputian

Hilton-Davis Chemical Co., a division of Sterling Drug Inc., holds a unique position in the chemical industry. By the billion-dollar standards of the chemical giants, its annual sales figures are unimpressive. But as the "custom tailor" to a host of major U.S. concerns, its importance to the industry as a whole is all out of proportion to its size.

Incorporated in 1922 as a research laboratory interested primarily in the lithographic arts, Hilton-Davis chemists invented, developed and introduced vacuum-dried flushed colors for the printing trade. Major emphasis today, however, is in the line of dyestuffs for textiles, carbon paper, cosmetics, pharmaceutical intermediates. Other prime interests: production of crystal violet dyes for hectograph use, optical brighteners for soap and textiles, flushed colors in certain vehicles for household paints, lacquers, industrial finishes.

In 1945, Hilton-Davis was acquired by Sterling, following an association growing out of the former's manufacture of the antimalarial Atabrine under license from a Sterling subsidiary, has proved a healthy alliance for all concerned. Hilton-Davis gains greater freedom to offer its services to companies faced with the problem of solving specialized chemical problems (and subsequently producing special chemicals for them either on a large or small scale); Sterling gains contacts, outlets throughout a major seg-

ment of the chemical industry.

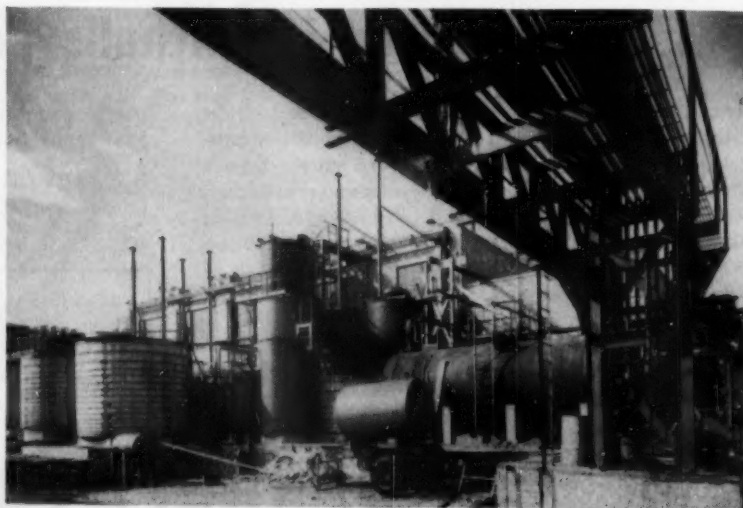
Dramatizing Hilton-Davis's unique role in the chemical line-up was National Cash Register's recent introduction of a carbonless carbon paper (*CW*, Feb. 6, p. 54). To H-D's staff of 70 research chemists came the problem of producing the necessary intermediates. Other chemical companies had tackled the poser, failed to come up with any solution. By solving it, Hilton-Davis management gained still another fan—in another segment of the chemical process industries.

For the soap industry, H-D has produced (on request) a group of chemicals to prevent tarnishing of silverware, detergents for specific uses, optical bleaches to make clothes "whiter than white." For metallurgists, it has turned out high-quality acid (for use in nickel-plate baths). The U.S. Bureau of Engraving uses a Hilton-Davis varnish in printing currency. For plastics producers, it has worked on (and is working on) coloring agents.

Production of individual chemicals isn't always large. In 1952, biggest single product: flushed organic colors, in the amount of 10 million lbs. But equipment needed to turn out a variety of materials is ever-increasing. Latest addition (in 1953): a 21-ton flushing machine (*see cut*), which mixes 1,500 gal. at a time—three times the capacity of the previous largest machine.

Research in this kind of business is, of course, an important factor. Currently, textile laboratories are maintained at Cincinnati, Boston, and at the Blackman-Uhler Co., Spartanburg, S.C. (H-D's Southern sales representative). Company management (led by James Thompson, general manager, and Nelson Knaggs, vice-president in charge of sales) also avails itself of the facilities and services of the parent Sterling central research labs at Rensselaer, N.Y., for special projects.

Working on a variety of products—all at the same time—presents any number of management problems in a small-size company. But Hilton-Davis executives are sure the problems of being a king-size lilliputian are worth the effort, will pay big dividends.



**CINCINNATI PLANT SITE:** Makes Hilton-Davis one of the three U.S. producers of beta-naphthol.



# It pays to pamper crops!

The farmer appreciates the value of scientific pest control, for he can thus raise more crops per acre and yield a greater profit. And progressive formulators, too, realize this growing market demands better chemicals to produce effective herbicides. For these, as well as for insecticides, Neville makes two grades of Solvents that are proving highly popular in this field.

## NEVILLE AROMATIC SOLVENTS

	NEVSOLV 200	NEVSOLV 30
Boiling Range	195°C (383°F) to 280°C (536°F)	130°C (266°F) to 190°C (374°F)
Specific Gravity	.890 to .915	.835 to .845
Color	Straw	Water White

● These NEVSOLVS are active solvents for DDT, BHC, 2-4-D esters, etc. Especially clean, good odor.

Each grade has individual characteristics but other boiling ranges are available.

### NEVILLE CHEMICAL CO.

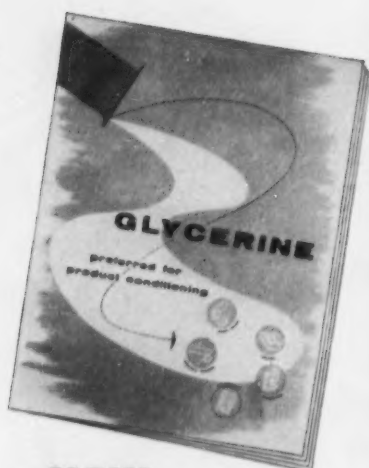
PITTSBURGH 25, PA.



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AC-2





## NEW 20-page booklet on PRODUCT CONDITIONING

Would your product be improved by better protection against hardening or drying out? Or by longer-lasting flexibility, softness, or controlled viscosity? Then this new booklet will be helpful to you. It discusses the technical aspects of product conditioning, and it contains text, tables, and graphs that help you select a product conditioning agent. Here are some of the subjects covered:

### Choosing a product conditioning agent

Hygroscopicity

Nonvolatility (vapor pressure)

Viscosity

Solubility—solvent power

Compatibility

Chemical stability

Noncrystallinity

Nontoxicity

Taste

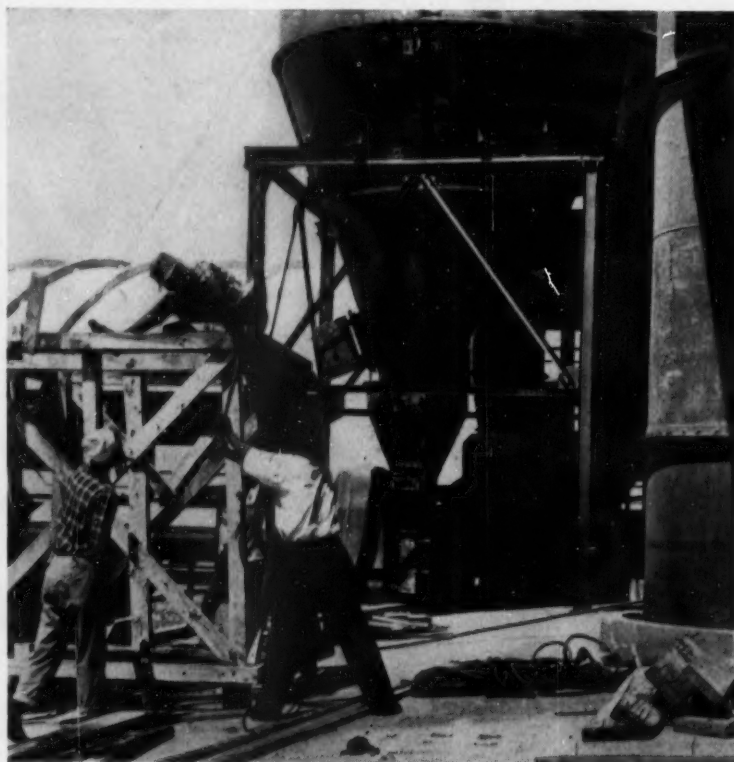
Product conditioning of toilet goods—pharmaceuticals

Product conditioning of foods and confections

Product conditioning of films and fibers

Performance versus cost

For your free copy of this valuable new booklet, just write—Dept. CW, Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.



LAUNCHING CEMENT PRODUCTION: For Kenya builders, 100,000 tons/year.

## FOREIGN. . . . .

**Cement/Kenya:** Production from Kenya's new £750,000 cement plant at Bamburi, north of Mombasa (see cut) is expected to be 100,000 tons this year. Coupled with production from a plant under construction by the East African Portland Cement Co., near Nairobi (due in by 1955), output should go far toward solving Kenya's perennial housing problem, aiding expanding industry.

**Exports/Germany:** The West German chemical industry seems to have fully recovered from mid-winter setbacks; exports in particular are soaring. Observers feel that barring sharp changes in world chemical markets, upward trends will continue through the balance of 1954. Last year's exports averaged slightly below 200 million DM monthly; January's record jumped to over 218 million.

**Synthetic Rubber/S. Africa:** Synthetic rubber is likely to be produced in South Africa as a sequel to Sasol, South Africa's new oil-from-coal plant, due in this summer. Sasol could provide the benzene; the Natal sugar industries have abundant supplies of ethyl alcohol; calcium carbide pro-

duction can be expanded easily. Adding to the case for synthetic rubber production: South Africa's current importing bill for rubber runs to \$30 million annually (29,000 long tons of rubber), could be cut two-thirds if a synthetic plant were built.

**Phenol/France:** Societe Rhone-Poulenc has started commercial production of phenol from cumene at its plant at Rousillon, France. Production is averaging 60,000 lbs./day.

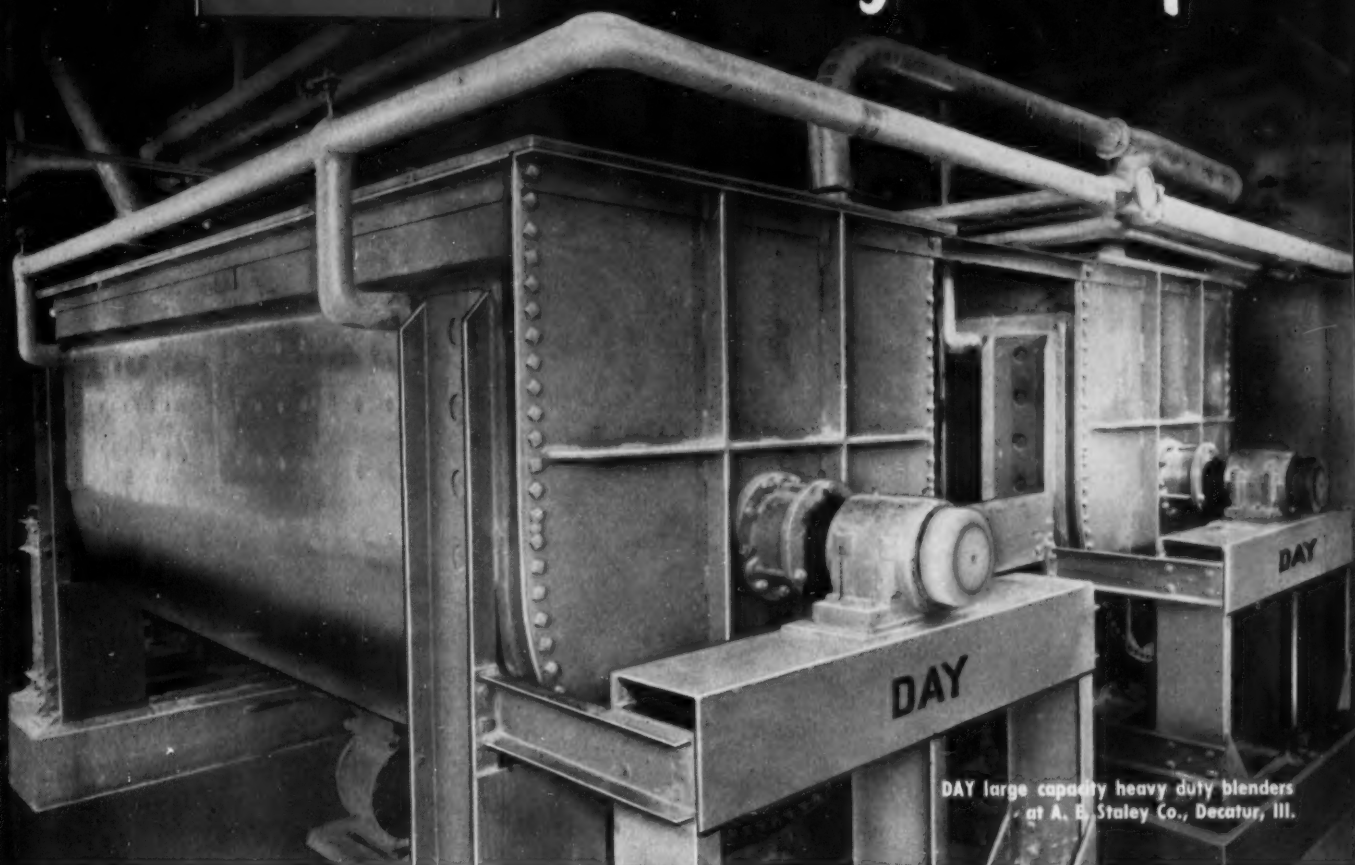
## LEGAL. . . . .

**Gas Hearing Ends:** The U. S. Supreme Court—with Associate Justice Tom Clark of Texas taking an active role in questioning attorneys—completed its hearing of arguments on the natural gas controversy involving Phillips Petroleum Co. and the Federal Power Commission. Attorneys for Milwaukee, Detroit and Kansas City contended that FPC should regulate the sale of gas by producers to pipeline companies because the prices charged on those original transactions "make millions of dollars' difference in the final sales to housewives." Questioned closely by Clark, the attorneys later conceded that the original price is about 5¢ per 1,000 cu. ft.,

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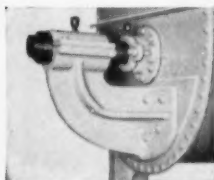


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SENATORS KERR, DANIEL: On natural gas question, they won't take "no."

while the final sale price to consumers is about \$1.30 for the same amount.

The high court now may take several months to decide this case, which is of particular interest to petrochemical companies; but it appeared this week that the Congress might get the last word on the subject. Sen. Robert Kerr (D., Okla.) and Sen. Price Daniel (D., Tex.) are strongly opposed to FPC regulation of intrastate gas sales; Kerr sponsored a Truman-vetoed bill that would have banned such regulation, and Daniel is prepared to do battle for a similar bill now if the Supreme Court upholds the arguments of the Northern cities' lawyers.

**Illegal Licensing:** A company owning a process patent must not discriminate in royalty rates on the basis of where the licensees buy their materials, Federal Judge Richard Rodney has ruled in Wilmington, Del. He dismissed the suit in which American Fomon Co. was seeking to collect additional royalties from the National Foam System on process patents for a chemical foam method for fighting fires.

**Inviolate Names:** In New Jersey and in Missouri, state and federal courts have issued orders limiting the use of chemical and pharmaceutical firm names.

• At St. Louis, U. S. District Judge Rubey Mullen directed Cole Laboratories of Long Island City, N. Y., to stop using the trademark "Cole" or "Cole's" on pharmaceutical or medical products. Mullen found that those trademarks belong to Cole Chemical Co., St. Louis.

• Colgate-Palmolive, whose headquarters are in Jersey City, has won a temporary injunction against a firm that used the name "Colgate Laboratories" and a Jersey City address in signing an advertisement for a drug product intended as a treatment for psoriasis.

**Suit on Synthetics:** Henry Gilmann, a chemist formerly employed by Quaker Chemical Products Corp. of Conshohocken, Pa., has consented to dismissal of his civil suit against his old employer. Gilmann had sued in federal district court at Philadelphia for an accounting of royalties on processes for synthetic resins and other products for industry. Gilmann said the company had paid him those royalties for only six years after he left the firm in 1944, while his contract called for payment of royalties for a period of 17 years. Quaker replied that Gilmann had broken the agreement by disclosing the process and formula information to other parties.

## KEY CHANGES. . .

**Glenn Crawford**, to president, Dunlop Tire and Rubber Corp., Buffalo, N.Y.

**William R. Moffitt**, to vice-president and technical director, Chemical Div., The Borden Co., New York.

**William C. Buffing, Jr.**, to comptroller, National Starch Products Inc., New York.

**T. W. Sharp**, to manager, Flexible Packaging Materials Div., Bakelite Co., Div., Union Carbide and Carbon Corp., New York.

**Carroll L. Wilson**, to director of industrial development, Climax Molybdenum Co., New York.

**Charles R. Witschonke**, to manager, Physical-Analytical Section, Research Div., American Cyanamid Co., Bound Brook, N. J.

**J. T. Sherman**, to manager, Metal Process Section, Sales Div., Chemical Construction Corp., New York.

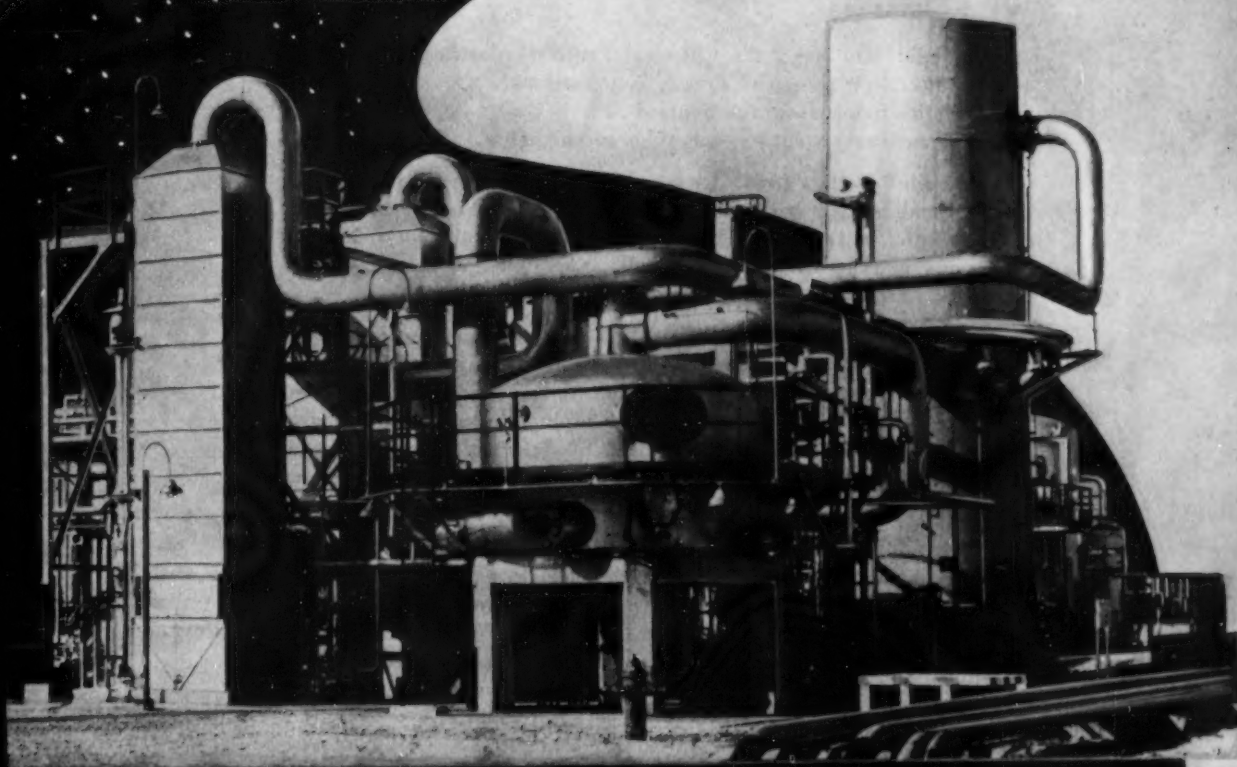
**Roger C. Bascom**, to field sales manager, and **Fred L. McNabb**, to technical service manager, Hycar and Rubber Chemicals Dept., B. F. Goodrich Chemical Co., Cleveland.

**F. F. Ogden**, to assistant director of development, Plastics Div., Monsanto Chemical Co., St. Louis.

**Emil Schlittler**, to director of research, Ciba Pharmaceutical Products, Inc., Summit, N. J.



**sulfur recovery at FAWLEY**



One of 18 individual process units, designed and constructed by Foster Wheeler, for this 125,000 bbl/day refinery of Esso Petroleum Company Ltd., this Sulfur Recovery unit is producing 40 Tons/day of commercially pure Sulfur for British Industry.

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new customers cut to your order overnight!

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transform laboratory dreams to the day-to-day realities

of low cost, big volume production. Call it creative ingenuity —

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that's helped multiply CPI output five-fold within a dozen years . . .

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constantly digging for better raw materials, equipment, new techniques

. . . and utilizing every bit of *how-to* they can get their hands on.

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they depend on in its ad pages.

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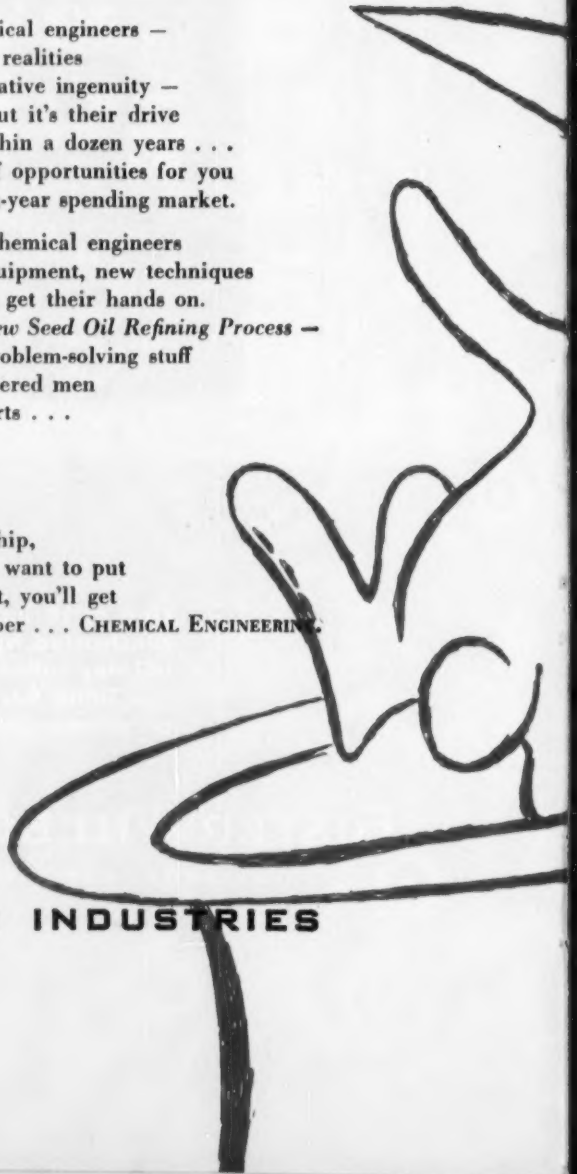
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## Chemical Engineering

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## Mr. Median

### Raw Materials:

Young man with a basic interest in the chemical industry.

### Processing:

Four years of college leading to a bachelor's degree in chemical engineering with some training in economics and psychology.

Approximately 15 years' actual experience, principally in production.

### Finished Product:

Plant manager about 45 years old, in charge of 250 employees, and earning approximately \$12,000/year.

employs more than 250 persons, the manager is a chemical engineer; if less, chances are he's a chemist. But there are exceptions: a manager in charge of a plant with over 500 employees has no degree at all; another, also with more than 500 employees under his wing, has a degree in chemistry; while still another heading over 500 workers has a degree in mechanical engineering.

Another interesting trend, still small statistically, is the growing interest in salesmanship, public relations and public speaking. It is, as one production man pointed out, interesting to the degree that it reflects tightening markets and stiffening competition.

Mr. Median's salary, dependent upon a number of variables, can be correlated with only one, the size of his plant (*see graph*). Generally, the larger the plant (number of workers), the greater his salary, but there are exceptions even here. One plant manager with less than 50 employees earns over \$25,000/year; another, in charge of more than 350 workers, receives less than \$9,000/year.

Difficult to measure, such variables as type of plant and operations, plant location, company policy, and limits of manager's authority and responsi-

## Designing a Plant Manager

The one definite feature pointed up by a current CW survey is the indefinite shape of the composite chemical plant manager. While less than half of those polled exactly fit the median plant manager's description, however, over 95% fall just above, just below or right on the median line.

Defined by the line, today's chemical plant manager looks like Mr. Median (*see box*). Approximately 40% of today's chemical plant managers fit this outline. Over 95%, however, would fit a broader description that looks like this:

Mr. Chemical Plant Manager is over 35 but under 55 years old, earns between \$7,000 and \$27,000/year, has a bachelor's degree either in chemistry or chemical engineering and has worked more than 5 but less than 20 years before attaining his position. He believes that courses in accounting, economics, personnel administration and psychology have (or would have, if he had taken them) served him in good stead in his climb; he feels that courses in business administration, human relations and law would be of value to him now; he lists the more important prerequisites for his job as education (particularly that gained after he has started to work), practical experience (especially in production), the ability to get along with and lead people. He believes that a basic interest in the chemical industry is a necessary motivation for managerial aspirants.

**Tenuous Threads:** Like a castle out

of sand, the median plant\* is an unsure proposition; it exists for the most part only statistically. In reality, 95% of the plants headed by Mr. Median range from 50 to 1,000 employees. Odds are (*see graph*) that if the plant

\* One with 250 workers.

### Experience wins out over education

47% considered experience more valuable in the training of a plant manager

32% considered experience and education of equal value

21% considered education more valuable

### It's a tossup on postgraduate education\*

57% thought such training worthwhile

43% did not

\* Courses taken or seminars attended after managerial aspirant has gone to work

### Accounting, economics, personnel administration and psychology are musts

91% believed such courses were helpful

9% did not


### The accent now is on the well-rounded man

47% would like to take courses in business administration, financial and plant management and organization, and human relations

25% would like to take courses in law

15% would like to take technical courses dealing directly with their job

13% would like to take courses in sales, public relations and public speaking



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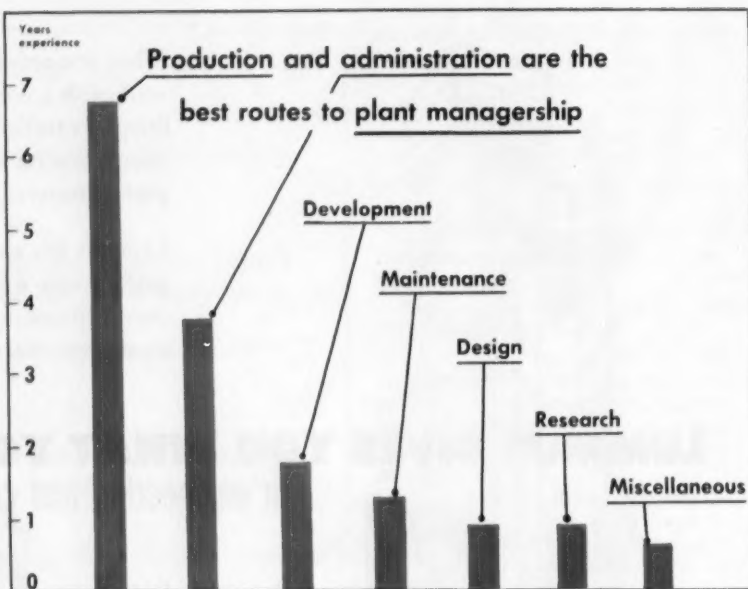
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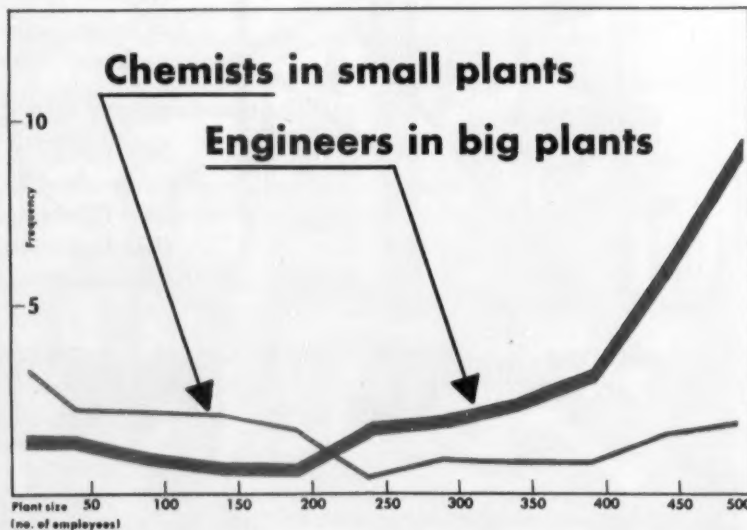


bility undoubtedly affect the manager's salary. By the same token, little correlation can be found between salary and such factors as plant manager's age or time on the job.

On the other hand, in preparation for his job, Mr. Median spent most of his time in production and administration (see bar graph), divided the rest among development, maintenance, design and research. Holes in the statistical dike, however, are the manager that spent all his 20 years in administration and the one that served his six years' apprenticeship solely in research.

**Solid Foundation:** No respondent is willing to discount education entirely in the construction of a plant manager. Most, in fact, agree that a scientific college curriculum topped generously with courses in business administration, human relations and—if the time can be found—some courses in liberal arts, are essential for the managerial aspirant.

Moreover, most plant managers feel that ability to handle people is a vital qualification. As one manager sums it up: "Know-how of getting along with others, getting others to work for the plan he develops is





## 28,601 Years of Chemical Experience

The skills acquired through experience are happily blended with the vigor and ambitions of youth throughout the Columbia-Southern organization.

¶ Nearly a third of all Columbia-Southern personnel have been with the company from ten to forty-five years. In the aggregate, the Columbia-Southern staff has had 28,601 years of experience! These people know the chemical business—and they understand the requirements of customers. ¶ Equally important, however, are the many fine younger members of the Columbia-Southern organization whose developing talents and abilities are assurance of continuing progress and adherence to high standards through the years ahead.



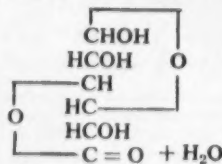
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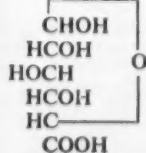
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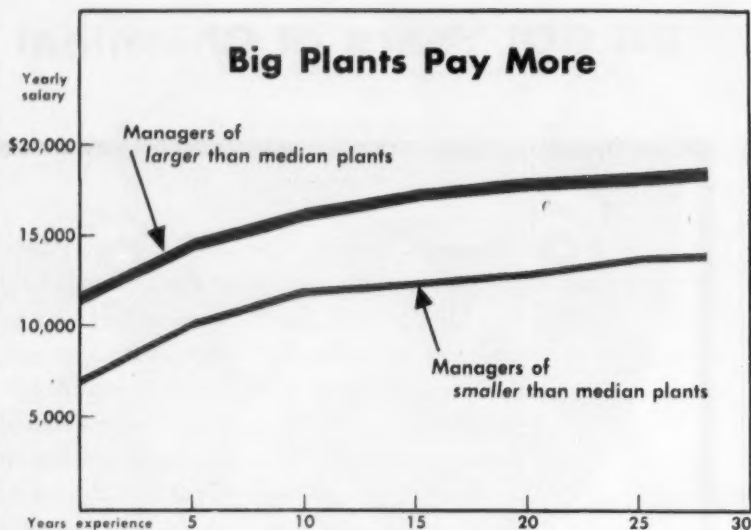
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## PRODUCTION . . . . .



probably the most valuable asset a plant manager can have." Without this [ability to handle people], another declares, chances are that he would never have become a manager.

On other personal qualifications of the aspirant, there is again a great deal of disagreement among the respondents. One manager believes he should be basically an extrovert, have the qualities of a hustling salesman. Another thinks he should have the attributes of a good teacher. A few respondents believe the aspiring plant manager should be "a born leader." One opines that he must have "an intuitive grasp of organization—which is fairly rare."

Mr. Median obviously must be a man of many parts. Some characteristics he must possess intrinsically; a few he may acquire through education and experience. But one factor most of his realistic counterparts agree upon is his need for a basic motivation; he has to want to be a plant manager. If he's got that, he's more than half-way home.

### Power Imbalance

Markets and meetings highlight news this week from power areas throughout the United States. In the Northwest, it was a question of continuing supply; in the Northeast, it was a matter of policy; and at Chicago, it was concern over new outlets for increased capacity:

- The Bonneville Power Administration recently called a conference in Portland (Ore.). Principal item of discussion: a report that the Washington Power Commission may build

steam plants to augment power supplies, may seek to obtain Columbia system federal power for resale to Washington utilities.

Among industrial customers of BPA present at the conference were Aluminum Co. of America, Anaconda Copper, Reynolds Metals, Pennsylvania Salt, Pacific Carbide, and Kaiser Aluminum & Chemical. Their interest in the question of continued availability of interruptible hydroelectric energy was more than academic. The question, declared William Krey, of Kaiser, has the potentials of a serious problem.

- Meanwhile in the Northeast last week, the Administration dealt a heavy political blow to the proponents of private development of additional power at Niagara Falls (N.Y.), advocated New York State's bid for the job.

The Administration, in a letter from the Budget Bureau to Sen. Martin (R., Pa.), chairman of the Senate Public Works Committee, endorsed the Case bill (CW, Feb. 13, p. 62), directed the Federal Power Commission to study N.Y. State Power Authority's plan first.

Briefly, the Case bill permits the State Power Authority to undertake power development at Niagara as soon as its plan is approved by the FPC. Endorsement of the bill virtually stamps the Administration as an opponent of other Niagara bills, could delay Congressional action on all power proposals until next year, and might possibly kill all opposing measures altogether.

- In Chicago, on the other hand, Walter Sammis was more concerned

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.....



**GLYCO PRODUCTS CO., INC.**

## PRODUCTION . . . . .

with a power surplus than with the need for additional capacity. Last fortnight, Sammis, president of Ohio Edison Co., told a sales conference of the Edison Electric Institute that the power industry would install its hundred-millionth kw. of generating capacity sometime in 1954, is on the lookout for new customers. Finding new outlets, he added, is a challenge the power industry hasn't had to face for some time.

## EQUIPMENT . . . . .

**Self-cleaning Filter:** American Air Filter Co., Inc. (Louisville, Ky.) has just introduced its new Roll-O-Matic, describes it as an automatic, self-cleaning air filter. Actually, the filter resembles a hand-drying roll-towel in operation, motor-driven instead of hand-operated. Glass fiber filtering media, supplied in 70-ft. rolls, is mounted at the top filter casing; it is carried on a continuous screen that rotates over top and bottom sprockets down the face of the filter. After the filtering media collects a predetermined dust load, a pressure switch sensitive to resistance differential across the filter curtain actuates a drive motor that rotates the screen, moves a certain amount of clean filter media into place. Roll-O-Matic is designed, says AAF, to clean both outside and recirculated air in commercial or industrial ventilating and air-conditioning systems.

**Vapor Recovery:** For those suffering from significant vapor losses in the transfer of volatile liquids, the new Greenwood Vapor Recovery Unit, claims maker Vernon Tool Co., Ltd. (Alhambra, Calif.), provides an airtight solution. A cone-shaped aluminum unit with a plexiglass cover, the device attaches to the fill pipe, fits into the loading dome. A rubber ring provides a positive seal, prevents vapor loss; the transparent cover permits observation when filling.

**In Brief:** A new Neoprene Notebook is now available from DuPont & Co. (Wilmington, Del.). Authored by the members of the firm's Rubber Chemicals Div., the book deals primarily with tests run by the rubber industry and what results mean to engineers and designers of rubber parts.

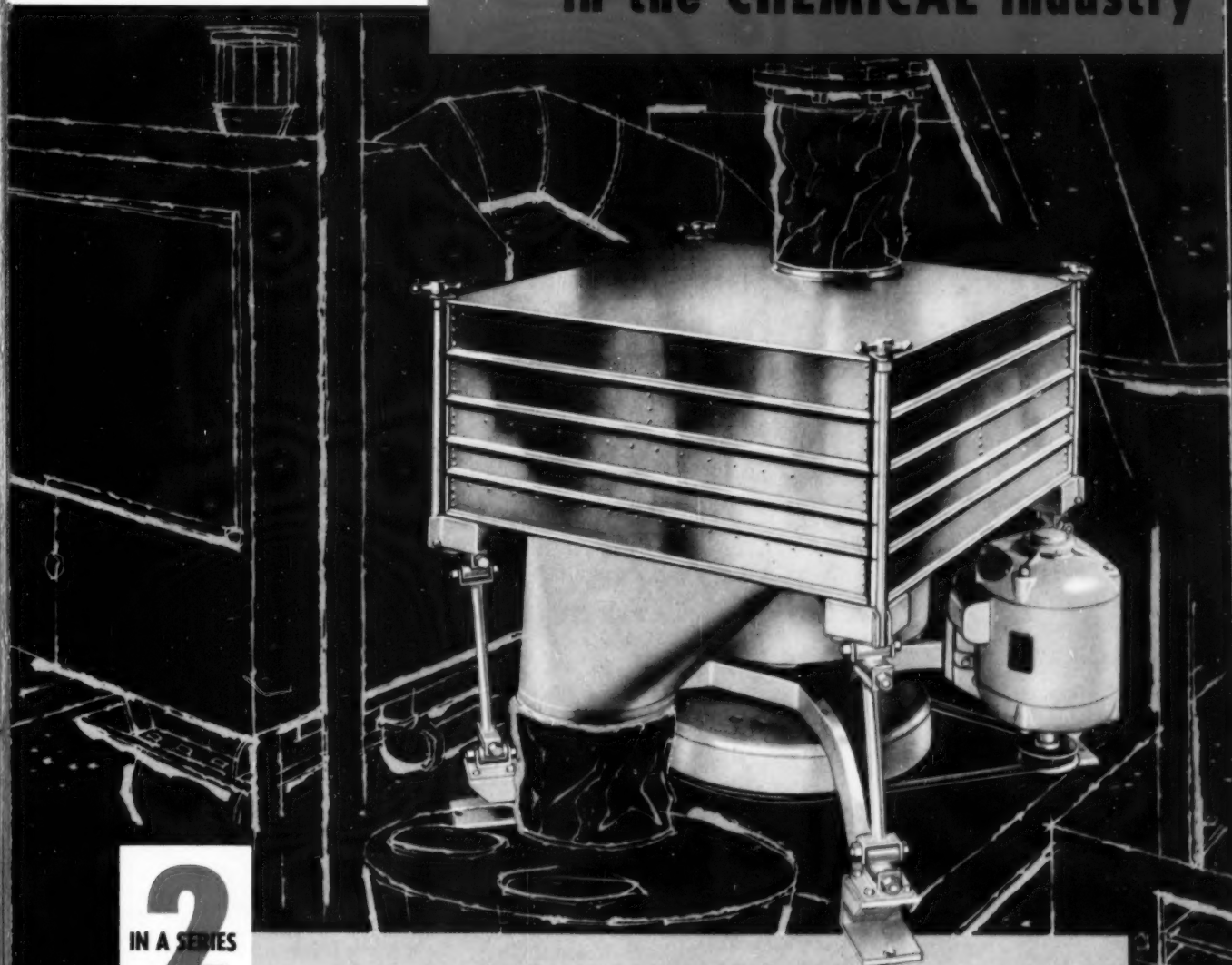
• Tower Packings and Packed Tower Design is both the title and main subject matter of the newly published second edition of the book first brought out by the U. S. Stoneware Co. (New York) in 1951. Twice the

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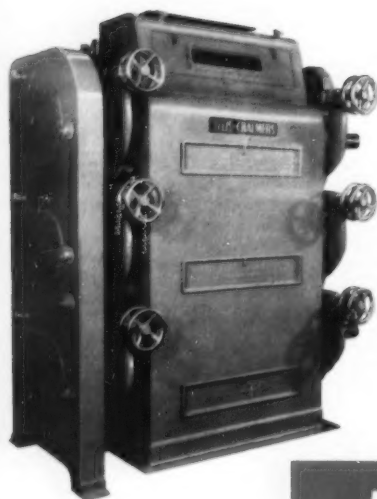
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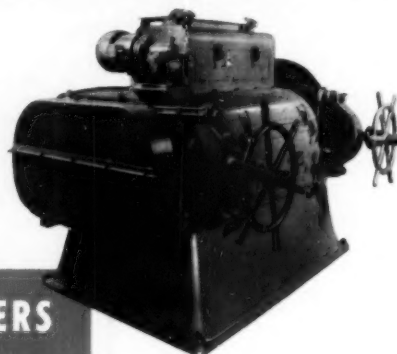
# MILLING



Multiple-stage mills are used when no separation is necessary between reductions. Where screening is required between milling stages, *AirSet* or *Allis-Chalmers* straight-line mills are recommended.

## MILL

**The Style N** three-stage roller mill, used for fine granulation, increases yield by minimizing fines. Each progressively finer grinding is extremely gentle. There is no excessive shattering . . . no size-destroying impact. Granulations of the entire output are uniform — ready for further processing. The Style N line also includes mills with one and two pair of rollers. Applications depend upon the degree of fineness desired. Style N mills are of the single-flow type. Available with rolls of 9 and 10-inch diameters in 18 to 42-inch lengths.



Heavy duty mill available with 20-inch diameter rolls in 24 and 42-inch lengths; 32-inch diameter, 40-inch length. Smaller Style Q flaker has 15 by 30-inch rolls.

## FLAKERS

**Allis-Chalmers flaking mills** are used to flatten dry or conditioned material into broad flakes — to increase density, improve combustion, as a compounding method, and in *pre-mill flaking* as an aid to subsequent processing.

Pre-mill flaking simplifies and speeds impact milling or grinding. The principle is basic . . . flakes shatter more readily than other forms. In impact milling, doubled, tripled, even quadrupled capacities have been credited to pre-mill flaking with the Allis-Chalmers flaker.

*Coordinated*



## MOTOR

**Allis-Chalmers totally-enclosed, fan-cooled, explosion-proof** motors are especially suited to conditions in the chemical industry. Frames are rigid cast iron, which is naturally corrosion resistant. Rib-type design provides ample reserve cooling capacity in dirty locations . . . no inaccessible air passages. All radiation surfaces are exposed for easy cleaning by cloth, air hose or vacuum.

The improved bearing design keeps maintenance cost low. Large grease reservoirs surround double-shielded bearings. Provision is made for in-service re-lubrication if required — an important factor where

corrosive vapors contaminate grease. Bearings are protected against foreign matter by a multiple labyrinth seal . . . a slinger on the outside of the bearing cap and a multiple-groove labyrinth between bearing cap and shaft. Another labyrinth seal on the inner bearing cap keeps grease from entering interior.

Allis-Chalmers fin-type, totally-enclosed, fan-cooled motors are made in the complete range of NEMA sizes. Frame sizes are being converted to the new NEMA standards beginning May, 1954. Larger motors are available in the tube-type design with similar maintenance saving features.

# ALLIS-



# MATES

**The all-metal gyratory *Circle* sifter is designed to separate dry granular products into two, three or four predetermined sizes. Units are available with from three to seven decks to meet varying capacity and separation requirements. Either silk or metal screen cloths of 2 to 325 mesh may be used. A single inlet facilitates feeding from hopper or conveyor. The number of separations dictate the number of outlets.**

Space conservation is accomplished by the stacked deck design of the *Circle* sifter. As much as 35 square feet of screening area is provided in only 9 square feet of floor space . . . one-fourth the space required by a single-deck unit with equal screening area. Installation entails no structural reinforcing. Dynamic balance makes the gyratory motion smooth and vibrationless. High capacity-to-screen-area ratio, quick product changeover and simplified sanitation are additional *Circle* sifter advantages.

Other compact A-C screens for light processing include the *Low-Head* sifter, available with balata, rubber and stainless steel liners, and the large capacity free-swinging sifter with a maximum of 453.6 square feet of screening area.

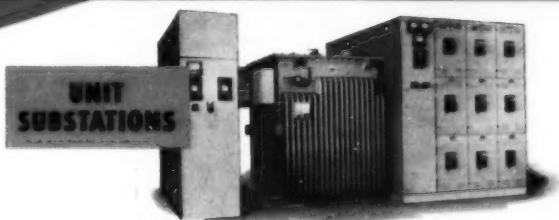
## SCREENS



Whether you require equipment for an entire process or a single replacement unit, call on Allis-Chalmers. From A-C you can get as much planning help as you need or desire . . . flow and plant design, pre-recommendation research and testing — and, of course, expert installation and service.

AirSet, Circle and Low-Head are Allis-Chalmers trademarks.

with the required  
electrical equipment



**Unit substations are available** in combinations of switchgear and transformer elements to meet any requirement. Compact and flexible, these units can be strategically located near load centers. High voltages are brought in with a minimum power loss over comparatively inexpensive small cable. Because secondary runs of heavy cable are short, voltage drop is reduced. With voltages efficiently regulated at the point of use, motor performance is improved . . . lights are brighter, steadier. Unit substations have no exposed live parts. Personnel are completely protected.

**Allis-Chalmers offers** an extensive line of manual and magnetic starters to meet every condition of motor operation. Starter functions, varying with specific job requirements, include full or reduced voltage starting, acceleration, speed control, reversing or non-reversing and dynamic braking. Built into every starter is the type and degree of protection dictated by the application. Starters are available in general purpose and special cabinets, including water-tight, dust-tight and explosion-proof enclosures.



# CHALMERS

**AC**  
ALLIS-CHALMERS

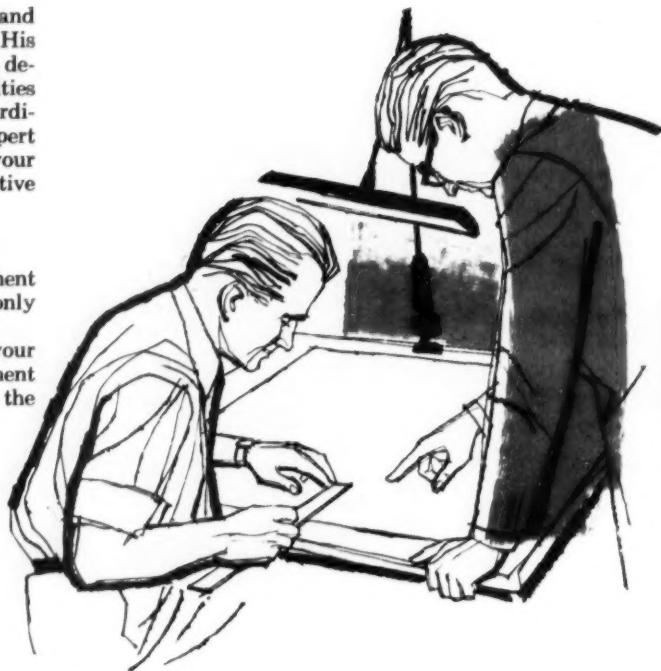
## COOPERATIVE ENGINEERING

Your A-C representative is an application specialist — ready and able to work with your staff to solve your processing problems. His recommendations are backed by Allis-Chalmers engineering departments . . . by complete research, testing and pilot plant facilities . . . by experience gained in solving thousands of equipment coordination problems. Each processing problem is given personal, expert attention. Engineers and technicians examine and evaluate your process to make *existing* as well as *new* equipment as productive and economical as possible.

## UNBIASED RECOMMENDATIONS

Because A-C builds many types and sizes in a given equipment line, recommendations are completely unbiased . . . dictated only by your specific needs.

Most important is the fact that Allis-Chalmers interest in your problem is continuous. Laboratory services, periodic equipment check-up, emergency parts service are yours for the life of the equipment.



Allis-Chalmers  
builds the following types  
of integrated equipment:

HEAVY	1	Crushers • Grinding Mills • Screens
LIGHT	2	Flaking Mills • Roller Mills • Screens
PYRO-PROCESSING	3	Furnaces • Kilns • Coolers • Dryers
POWER	4	Generators • Condensers • Pumps • Transformers • Switchgear Substations • Motors • V-Belt Drive • Control
LIQUID HANDLING	5	A complete line of Centrifugal Pumps
AIR AND GAS HANDLING	6	Centrifugal Blowers • Axial Compressors

Allis-Chalmers also makes equipment for solvent extraction, electronic heating, metal detection, and inter-floor conveying.

Allis-Chalmers  
1150 S. 70th Street  
Milwaukee 1, Wisconsin

(Explanation of process or problem)

Send me the following bulletins:

☐ 25C6177, "A-C Equipment for the Process Industries."

☐ I would also like bulletins on \_\_\_\_\_  
type of equipment

A-4315

## WRITE FOR LITERATURE

A 28-page insert, "Allis-Chalmers Equipment for the Process Industries," may be found in the Chemical Engineering Catalog. This insert is available in bulletin form (25C6177). Individual bulletins covering specific equipment lines also are yours for the asking.

Name.....  
Title..... Company.....  
Address.....  
City..... Zone..... State.....

## PRODUCTION . . . . .

size of the first edition, the new text contains two to three times more data and illustrative problems on such subjects as pressure-drop, flooding, hold-up, distillation, tower auxiliaries, data generalization and liquid-liquid contacting, plus a complete glossary. The book is available at U. S. Stoneware. Cost: \$8.50 copy.

- Chem - Wear, Inc. (Darien, Conn.) has just posted a new price list covering its chemical-resistant clothing.

- A new Protection Guide for Hazardous Gases is now available from Acme Protection Equipment Co. (Chicago). The guide considers 433 gases, fumes, mists and dusts present in various industrial operations that require gas masks. Descriptive information, safety limits and appropriate gas mask canisters are also discussed.

**Pressure Controller:** A new type 1440, nonrecording pressure controller designed to handle positive and negative pressures from high vacuum up to 10,000 lbs. is the latest offering by Black, Sivalls & Bryson, Inc. (Kansas City, Mo.). Claimed to be highly accurate, the unit was developed for sensitive pressure-vacuum control systems, comes in a compact, weather-proof aluminum case.

- Companion offering to the pressure controller is Black, Sivalls & Bryson, Inc.'s type 1450 displacement liquid level controller containing a torsion tube that transmits float movements to reflect changes in liquid level or in gravity of the controlled fluid. Added feature: a specific gravity index, which offers a method of compensating for various liquid gravities to be controlled.

**Pump Without Packing:** From Sweden comes word of another approach to the problem of avoiding the stuffing box in centrifugal pumps. The country's Jönköpings Mekaniska Verstad (Stockholm) claims its No-box pump eliminates the difficulties ordinarily encountered in pumping corrosive or abrasive liquids.

Essentially, the seal consists of an additional impeller in place of the stuffing box, a separate chamber within the pump to house both the extra impeller and the sealing liquid (usually the same material that is being pumped). The auxiliary impeller is located on the same shaft as the main pump impeller but works in opposition to it. The secondary impeller produces a liquid ring of sealing fluid. Under vacuum, the ring keeps air out; under pressure, keeps fluid in.



### thrifty to use

You can keep Hackney Seamless Containers clean and sanitary with far less time and effort because they're formed from one piece of metal. The interior has no welds, rivets, or crevices to catch or hold food particles. Designed to give years of service, with strong top curl, stout welded handles and tough bottom wearing ring. Your choice of black, galvanized or tinned steel, stainless steel, or aluminum—in several sizes. Write for details.

Seamless Interior



Wearing Ring

**Pressed Steel Tank Company**  
Manufacturer of Hackney Products  
 1448 South 66th Street, Milwaukee 14, Wisconsin

**Hackney**  
SEAMLESS CONTAINERS

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

## CHEMICAL FINANCING

*is NOT ALL we do*

If you are considering new projects or Company acquisitions in your growth picture, perhaps we can be helpful even though your Company may not need financing.

For information consult:

*Chemical Department*

RICHARD B. SCHNEIDER, Vice President

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# Mono Laurates Di

- STEARATES
  - LAURATES
  - OLEATES
  - RICINOLEATES
- 
- WETTING AGENTS
  - THICKENERS
  - PLASTICIZERS
  - EMULSIFIERS

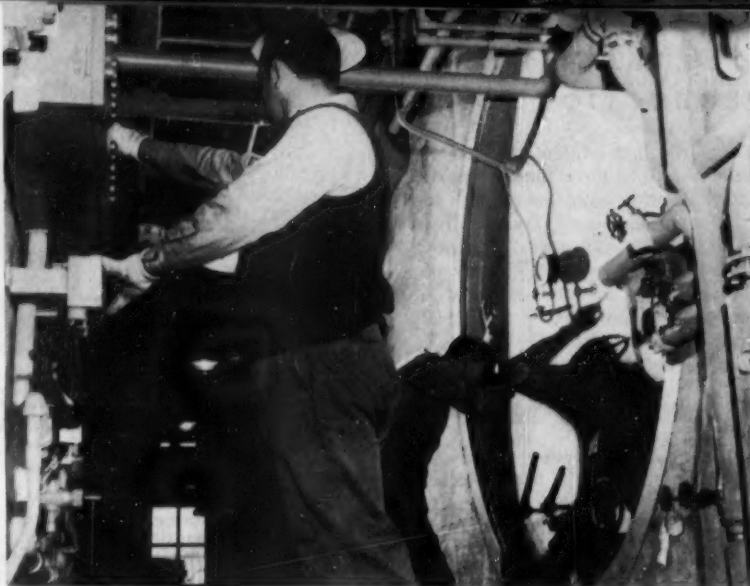
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MEET YOUR  
SPECIFICATIONS



THE FLAME AND THE FLASK—SYMBOL OF QUALITY

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CHEMICAL MANUFACTURERS

5147 W. 67th Street, Chicago 38, Illinois  
AKRON, OHIO • NEWARK, N. J.  
CHICAGO, ILL. • LOS ANGELES, CAL.



OPERATOR controls pilot reaction towers from steel corridor.

## Engineered for Pressures

On at least one count, acetylene molecules have a great deal in common with humans: they raise a big fuss if you try to pack them into tight quarters without taking adequate precautions.

Just what these precautions are and how tight you can pack them is a question that General Aniline & Film has been asking for almost 15 years. The answers—which cost several millions—are being embodied in a new \$6-million plant in Calvert City (Ky.) for making high-pressure acetylene derivatives (CW Newsletter, Apr. 17).

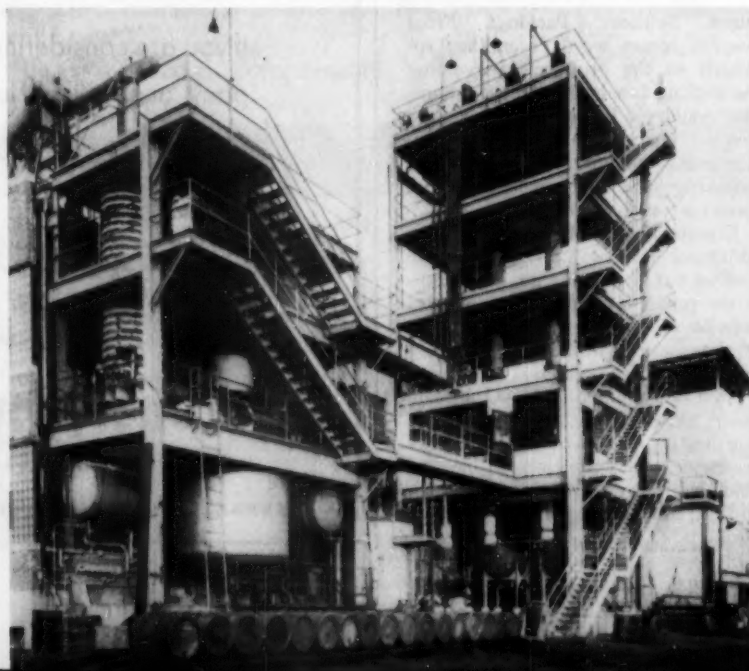
The commercial plant will incorporate many of the features of the firm's pictured Linden (N.J.) pilot facilities. First commercial products will be

members of the PVP family. But vinyl alkyl ethers, esters, and polymers are currently being evaluated. Eventually, they'll also be made at Calvert City.

The basic work on taming acetylene under pressure was done by I. G. Farben's J. W. Reppe. GAF, however, bought the German patents and started investigations where Reppe left off.

Fundamental in handling acetylene under pressure is to dilute it with an inert gas and to minimize free space (where gases might collect) by using small-bore equipment. From there, as GAF can testify, it's a matter of sound engineering and hard-earned know-how before acetylene can be called social.

HIGH-PRESSURE acetylene pilot unit will be scaled up to \$6-million plant.



# WHEN IT'S METHANOL BUY FROM CARBIDE

*because*

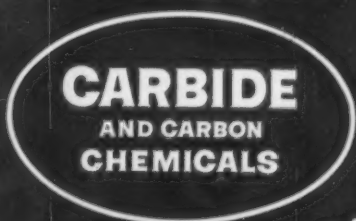
- Added production now makes methanol available in any quantity
- It's made in two places: So. Charleston, W. Va., and Texas City, Texas
- Bulk Stations are strategically located for the convenience of large industrial users
- There are warehousing facilities in 45 different locations from coast to coast for the service of those who purchase in LCL quantities
- Representatives are situated in 21 offices in principal cities to lend you technical assistance




*Methanol serves a vital part in many industrial operations. Its important uses are:*

- \* Intermediate for formaldehyde and methyl chloride
- \* Fuel for heating insulated railroad cars
- \* Anti-freeze for gasoline
- \* Component of special fuels for aircraft, racing cars, and motorboats
- \* Solvent for vinyl acetate adhesives, surface coatings, and inks
- \* And to prevent the formation of hydrates in utility and natural gas lines

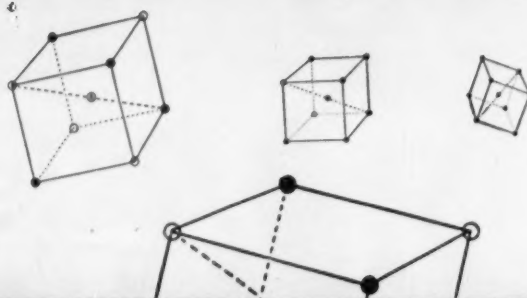
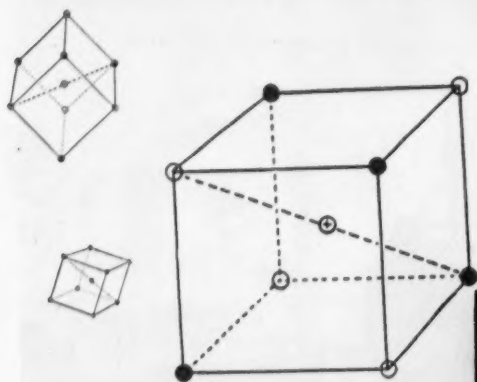
*For additional information ask the CARBIDE office nearest you for the technical information sheet on Methanol. Ask for F-8141. In Canada: Carbide Chemicals Sales Company, Division of Union Carbide Canada Limited, Toronto.*



**CARBIDE  
AND CARBON  
CHEMICALS**

Carbide and Carbon Chemicals Company  
A Division of  
Union Carbide and Carbon Corporation  
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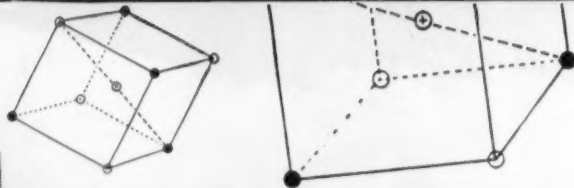
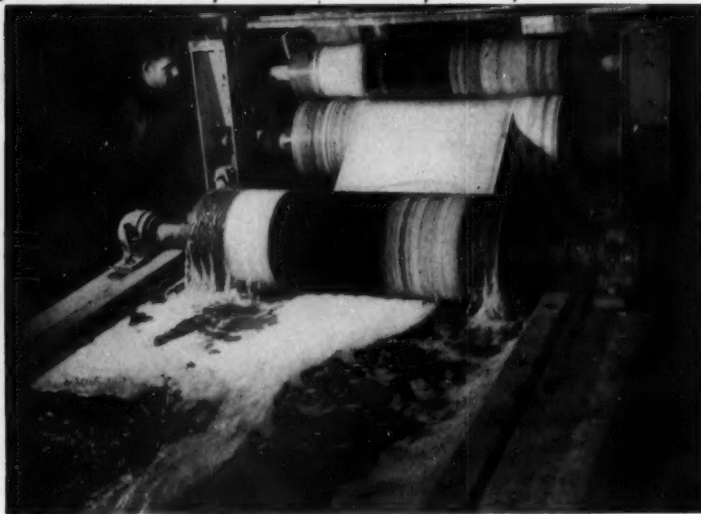
# Life ...on the



**A TRAP FOR IRON IONS.** These patterns show how unwanted ferric ions are taken out of solution by AERO\* Sodium Ferrocyanide. Once trapped, the ions are nonreactive, and can be held in suspension or filtered out.

Weirton Steel finds this a "pattern for profit." In their electrolytic tin-plating baths, iron caused a tin-rich sludge to form, which had to be cleaned out weekly. Now sodium ferrocyanide sequesters the iron, prevents sludge formation and extends clean-out interval to three months. This principle is also widely used to remove trace metals in gasoline refining, in fermentation and other chemical processes.

\*Trade-mark

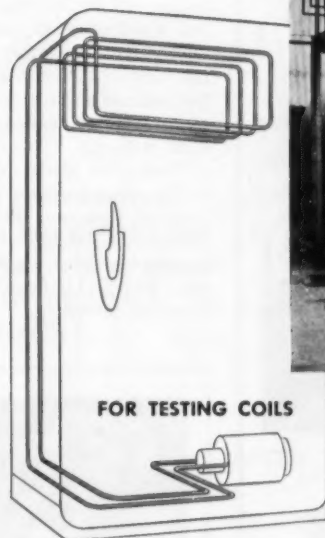


"...EVERYTHING NICE"—AND SAFE. CeDe, Inc., makes its "Smarties" penny candy with the same pure product used in making pharmaceutical pills—Cyanamid's Magnesium Stearate. Its uniformity and fine particle size make it an excellent dry lubricant.





# Chemical Newsfront



**HOW TO GIVE WATER A THINNER SKIN.** Large tanks for storing organic liquids are usually tested by filling with water. But there's a hitch: water's high surface tension forms a "skin" over minute openings that prevents its escape. Organic liquids, with lower surface tension, pass through. For an accurate test, a small amount of AEROSOL® OT Surface Active Agent gives water a thinner skin like that of organic liquids. In testing refrigerator coils, by immersion, thin-skinned water also allows freer air release at the opening of tiny flaws. Send for Data Sheet, "Leak Testing with AEROSOL OT."



## VINYL FILM GOES ASTRONOMICAL.

New uses, like these "space suits," have swelled vinyl film production from 40,000 yards in 1940 to 450,000,000 yards today. Helping to make it possible are the long-lasting flexibility and light stability given vinyl sheeting by plasticizers made with AERO® Phthalic Anhydride.

American Cyanamid Company  
Manufacturers Chemicals Department  
30 Rockefeller Plaza, New York 20, N. Y.  
Gentlemen: Please send me the following literature:  
☐ "Leak Testing with AEROSOL OT."  
☐ "AERO Phthalic Anhydride, Properties and Methods of Handling."

CW 4-54

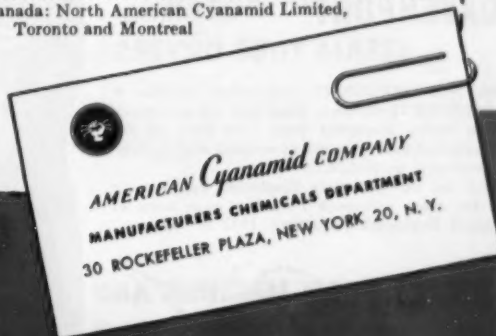
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Company.....

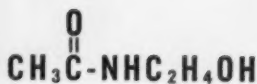
Address.....

City.....Zone.....State.....

In Canada: North American Cyanamid Limited,  
Toronto and Montreal



# N-ACETYL ETHANOLAMINE



*gives you . . .*

**humectancy plus  
solvating power**

*use it with*

animal glue  
casein  
zein  
methyl cellulose  
starch

*to make*

printing rollers  
bookbinding glues  
adhesives  
paper coatings  
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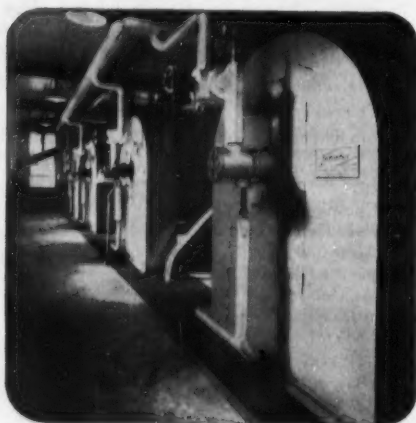
Order now and profit from this versatile humectant.

## CARBIDE AND CARBON CHEMICALS COMPANY

A Division of  
Union Carbide and Carbon Corporation

UCC

30 E. 42nd St., New York 17, N. Y. Offices in Principal Cities  
In Canada: Union Carbide Canada Limited, Toronto.



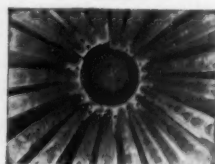
### "DAVENPORT" ROTARY STEAM TUBE DRYERS

This type DAVENPORT installation includes a DAVENPORT Continuous Press and all necessary storage tanks. Accepted year after year as the most efficient and economical method of dehydrating semi-solid materials.

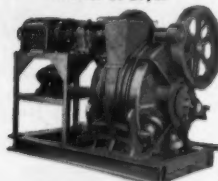
Send for our complete illustrated catalog. Or . . . for quick reference . . . see your copy of Chemical Engineering Catalog, 1953 or '54.

**DAVENPORT MACHINE AND  
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Davenport 2, Iowa, U. S. A.



Interior of Dryer



Continuous Press

DAVENPORT

De-Watering  
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Steam Tube, Hot  
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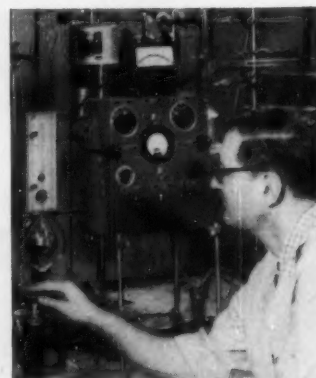
## PRODUCTION . . . . .

### Recycle for Sludge

Working on the principle that even with an unlimited supply of raw materials, it doesn't pay to overlook any bets in boosting the efficiency of the process, Dow Chemical last week decided to build a plant to recover magnesium metal from sludge now discarded as waste. The plant will be a small one, but it will add an estimated 2.5 million lbs./year to the firm's production.

The sludge is solid waste that forms in the cell in Dow's electrolytic process. Composed of magnesium oxide wetted with a number of molten salts, but heavier than the molten salt bath, the mixture sinks to the bottom of the electrolytic pot, carrying some magnesium with it.

This solid sludge will be trucked to the recovery plant where it will be crushed, then sent through a ball mill for further reduction. Since the magnesium particles are larger than the rest, it will be possible to separate them by screening.



### Hydrogen Spotter

THIS CHEMIST is measuring the pressures of gases released from a sample of steel as a preliminary step in U.S. Steel Corp.'s new method of analyzing hydrogen. It may, according to the firm, prove to be a slick and accurate means of studying hydrogen in steelmaking. Based on a difference in conductivity, the method can be adapted to the analysis of any multicomponent gas mixture where all the gases except one have about the same thermal conductivity. Time for the analysis is about 15 minutes, probable error is plus or minus 0.12 ppm.

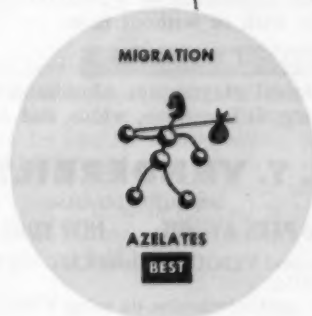
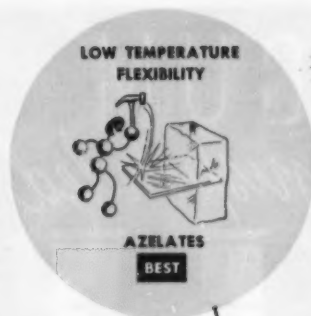
# Tests Prove Superiority of Plastolein® Azelate Plasticizers!

**DIRECT COMPARISON  
PROVES ADVANTAGE OF  
AZELATES OVER OTHER  
ALIPHATIC DIESTER  
PLASTICIZERS!**

It will pay you to start an extensive evaluation of the Plastolein Azelate Plasticizers. With availability increasing, the choice between these Azelates and other aliphatic diester plasticizers can be made on performance alone.

Check the points illustrated and see for yourself the advantages you get from the Plastolein Azelates. On a performance versus cost basis in films, sheeting, extrusions, dispersions and coated fabrics, these Azelates are your best buy today.

Don't delay . . . investigate the Plastolein Azelates today. Write Dept. I-4 for samples and descriptive booklet covering all Emery's Plastolein Plasticizers.



**Emery**

**Fatty Acids & Derivatives  
Plastolein Plasticizers  
Twitchell Oils, Emulsifiers**

**Emery Industries, Inc. Carew Tower,**

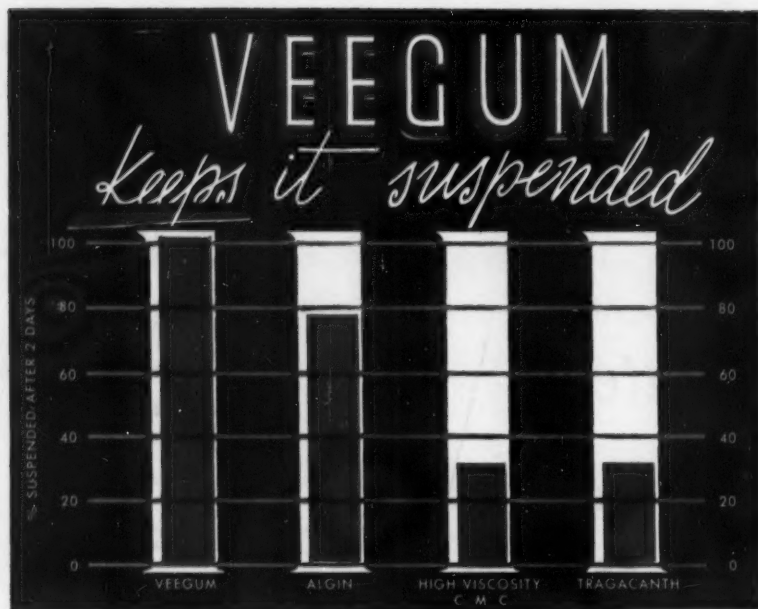
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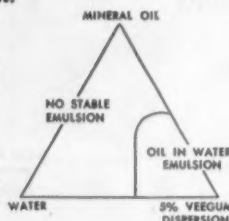
To test the suspending ability of VEEGUM, 4 g of Nytal 300 (an R. T. Vanderbilt Co. talc) were suspended in 100 cc each of aqueous dispersions of VEEGUM and organic gums at 65 centipoises. After all suspensions had 2 days to settle, VEEGUM held from 28% to 300% more talc suspended than any organic gum tested. Results were similar when we tried pyrophyllite, clay, colloidal sulphur, and such organic compounds as DDT.

#### DISPERSING HYDROPHOBIC MATERIALS

without the foam of lowered surface tension is practical with VEEGUM. Thixotropic characteristics add to its thickening and suspending ability. In addition, VEEGUM maintains product consistency by thickening slightly with heat.

#### STABLE EMULSIONS

containing nonionic and anionic surface active agents can be prepared with small amounts of VEEGUM. Less than 1% of VEEGUM permanently stabilizes many types of emulsions containing oils, fats and waxes. VEEGUM also stabilizes emulsions containing a percentage of electrolytes.



#### EASILY PREPARED

Smooth, aqueous dispersions of VEEGUM may be prepared by simple agitation with or without heat.

#### PROPERTIES: VEEGUM

is purified Colloidal Magnesium Aluminum Silicate. Non-toxic and non-irritating, it is opaque, white, and non-gelatinous.



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SPECIALTIES DEPARTMENT

230 PARK AVENUE NEW YORK 17, N. Y.

SEND  
TODAY  
FOR THE  
COMPLETE  
VEEGUM  
STORY

- ☐ Please send VEEGUM bulletin C122. ☐ Please send sample of VEEGUM.

- ☐ Please send information on using VEEGUM for:

(state application)

NAME \_\_\_\_\_

POSITION \_\_\_\_\_

(Please attach to, or write on, your company letterhead)

#### PRODUCTION . . . . .

The plant will start up sometime in July. Contract for constructing the required 20x70 ft. building has already been awarded to the Austin Co., which will also install the equipment. That will be fabricated by the Denver Equipment Co.

**Sealing Insufficient:** When you're finished with a coal mine, you plug all the openings and thus eliminate any chance for the formation of sulfuric acid and the consequent danger of polluting streams? Not at all, says Mellon Institute's S. A. Braley after a five-year study of the problem in cooperation with the coal industry and the Pennsylvania State Health Dept.

The idea in plugging up the openings is that, if you shut off the oxygen, sulfur (in the form of iron sulfides in the mine) can't be converted into sulfur dioxide, thence into acid.

That works fine in theory, says Braley, but in practice, it's impossible to shut out the oxygen completely. It seeps in through cracks and crevices in the ground itself because of the variations in temperatures and barometric pressures.

Neutralizing the acid with lime as it leaves the mine poses a huge engineering problem, and Braley writes this off as an impractical solution. The encouraging note he sounds, however, is that acid production from strip mines can be prevented if the workings are kept dry and then back-filled. And though he didn't find any cheap and easy way of preventing acid formation in underground mines, he does think many cases of pollution can be avoided, others minimized, by proper mine drainage.

**Biological Oxidation:** Petroleum refineries, too, have their problems with stream pollutants, but they're not so insurmountable. At the Sarnia (Ont.) refinery of Sun Oil, which will be formally opened next month, the biological oxidation process is being employed for purifying phenolic wastes. This, of course, is a familiar method for chemical companies, but it's first of its kind for a refinery. (There are others, however, that are expected to start up in the near future.)

At the Sarnia refinery, contaminated water is sent to the Bio-Pit where it's held for seven hours. It then goes to a section of the water separation system. Sludge separates out and is returned to the pit.

The clear effluent is divided also. A portion of it is returned to the Bio-Pit. The balance is combined with the rest of the plant's effluent.

IN TIMES SQUARE OR TIMBUKTU  
WE ARE INTERESTED IN YOU...  
AND YOUR VACUUM PROBLEMS



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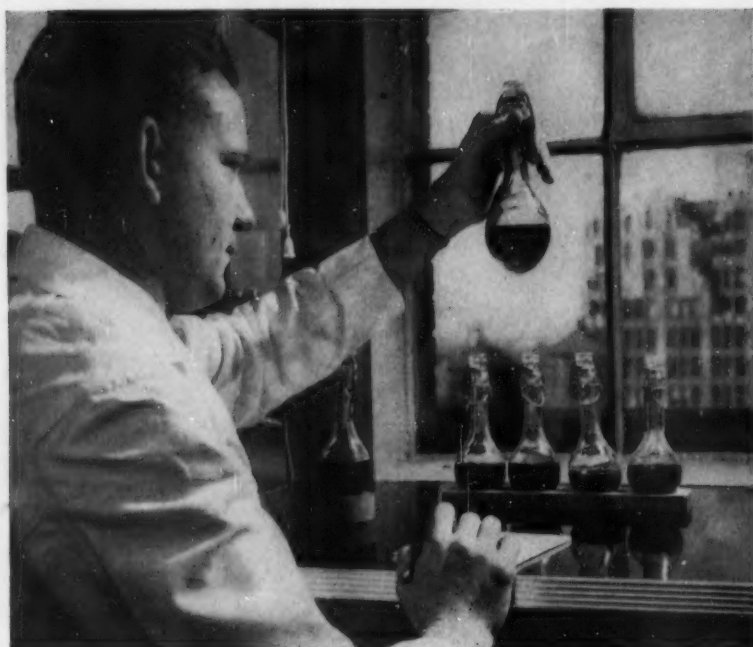
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CONDENSING EQUIPMENT



**BEFORE** packaging, perfume ingredients are tested for solubility in propellants.



**PRESSURE** filling is used for foam products.

## Finding the Long-Lasting Fragrance

One of the oldest essential oil companies in the business, Dodge & Olcott has recently added a new touch—a laboratory completely equipped for

filling and testing aerosol packages. Directly spurring the move is the success aerosols are having in the toiletries field. But there are other

factors, too—including an awareness that perfuming aerosol products involves more than adding a few drops of a pleasing fragrance. It's plain now

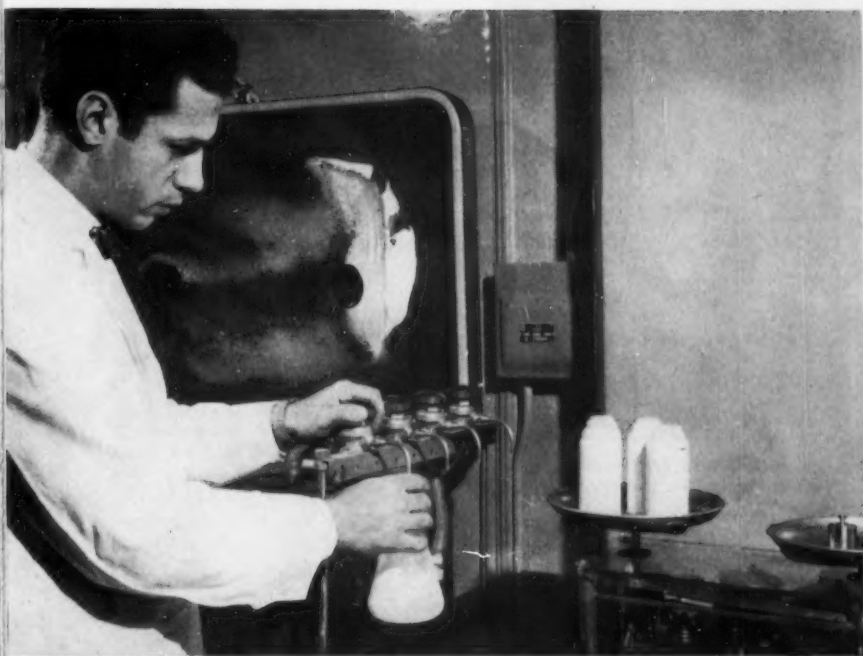


**AEROSOL** can. Colognes, insecticides are generally cold-filled.



**VALVES** are crimped and sealed with special capping machines.





**COLD** filling requires liquefied propellant gas. Propellant and product are poured into . . .

that these ingredients can cause problems involving solubility, compatibility, leakage, corrosion, shelf life.

**The Setup:** To get first hand knowledge of such difficulties with the aim of overcoming them, 155-year-old D&O has added a lab-size pressure

filling system (suited for foam products like shave creams) as well as a cold-filling system (employed for such items as colognes, hair lacquers, antiperspirants).

In addition, there is a corrosion box and a special water bath for testing

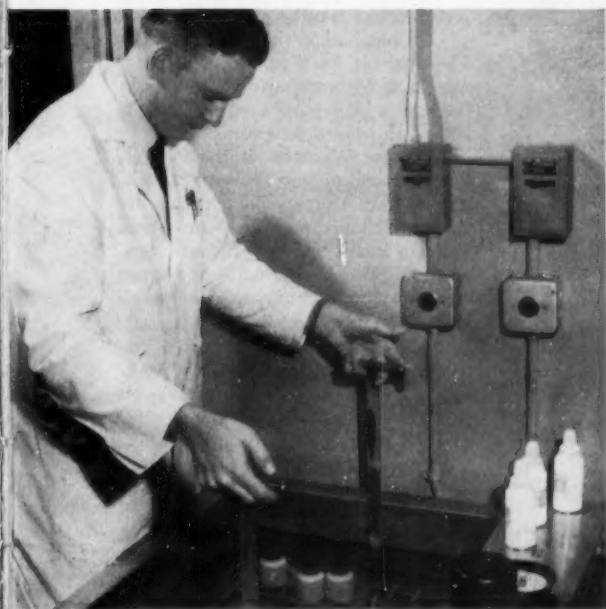
finished cans for leakage. The former's a custom-built cabinet capable of maintaining a uniform temperature over a predetermined period of time. Object: to test the compatibility of the finished aerosol product with can components—walls, nozzle, etc.—and to discover the amount of corrosion or clogging.

A month's stay in the box at a constant temperature of 140 F is equivalent to a year's shelf life. After removal, cans are cut apart and the contents examined. Finished products that pass the tests are then forwarded to the customer in either a 6- or 12-oz. can with a specially designed D&O label.

To understand how D&O came to build the lab, it's necessary to look at the fragrance and aerosols picture today. Du Pont and General Chemical, suppliers of aerosol propellants, both maintain labs that offer formulating services.

From these labs a firm can find out whether or not its product can be adapted to aerosols. It can also learn what propellant mixtures give certain spray patterns.

**Testing Time's Toll:** But after that it's up to the interested party—he must put the product through an ageing test to determine its stability. In other words, propellant makers can't always tell what effect the propellant will have on the odorant. (It's now generally recognized that Freon 11 and



**WATER** bath shows up any possible leakage after capping.



**CORROSION** box simulates year's shelf life in one month.

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## SPECIALTIES . . . . .



**LAST STEP**, cans are opened and ingredients checked for stability.

12, Genetron 11 and 12 have an adverse effect on the essential oils.)

But with the upswing in the popularity of aerosol toiletries like shave creams and hair lacquers, Du Pont and General have had to stagger these formulating jobs. Because of this and because such lab studies left a lot of questions unanswered, D&O saw the need for doing the work for its customers.

Actually D&O's step is one that's a matter of degree rather than of kind. Other essential oil firms have been doing work but on a small scale. So perhaps D&O is starting a trend. (For several years now Givaudan-Delawanna has similarly lab-tested its chemicals before recommending them for use in aerosols.)

**Argument for Aerosols:** The argument for packaging odor-containing products in aerosols is this: it has long been known that perfume and cologne bottles lose their fragrance when they're opened. But since air never reaches pressure-packed products, perfumes remain fresh and fragrant to the last drop.

There's still a great deal of research to be done in formulations, however. Interest in aerosols and essential oils has multiplied in the past six months—D&O as well as other firms will keep plenty busy.

## Ground Rules

Listless as the soil conditioner industry seems these days—a New York discount house is selling Fluffium at \$1.75/gal.—there's considerable interest in the Federal Trade Commission meeting this week in New York. FTC is holding final discussion on trade

practices rules for the SC industry.

Starting with a fairly broad definition of conditioners—it includes synthetic organic chemical substances or chemically modified natural substances—FTC proposes some 12 rules, the outcome of last December's meeting in Washington.

Two points of Rule I have long been in debate: "soil treated" directions must include depth and area, and in SC-fertilizer combinations, area and depth effectively both conditioned and fertilized must be given.

Rule VII holds it's unfair to misrepresent the nature of the business of the seller. It's unfair, for example, for a firm to be on the label as a manufacturer if in fact it is only a distributor.

Considerable attention is given to pricing, trademark imitations, etc. Generally speaking, other rules are applicable to almost any industry.

After it has heard all suggestions for changes from industry, FTC will draft its final rules.

## The Cue to Leap

Perched to jump into the aerosol market for over a year now, the plastic-coated glass container made by Wheaton Glass Co. (Millville, N. J.) has at last been given its cue. According to Wheaton, sample marketing of two products packaged in low-pressure containers—25 lbs. psi.—will begin in a week or so.

While it does not divulge what the products are, Wheaton has been encouraged by the quick sales that an unjacketed ultralow-pressure glass aerosol has had in the past six weeks. The item is its 2-oz. bottle used to merchandise two perfumes made by Carven, which purchased some 125,000 of this aerosol-type.

But, says Wheaton, it is not likely this type will appear again soon. The reason: the Atomic Energy Commission now has top priority on Freon 114, Du Pont's ultra-low-pressure propellant. Wheaton sees this as forcing toiletries manufacturers to switch their interest to plastic-coated types.

**Brighteners:** Hilton-Davis Chemical Co. (Cincinnati) has just developed two new optical whiteners for a wide range of textile fibers. Safaritone C is a brightener for cotton and viscose fibers. Safaritone WNOA is said to provide level dyeing on wool, nylon, Orlon and acetate. Acid or alcohol solubilization is not required for either product. Whiteners can be applied in the soap or in rinse operation at low temperature.

 <b>PAINTS</b>	 <b>VARNISHES</b>	 <b>ADHESIVES</b>	 <b>INKS</b>
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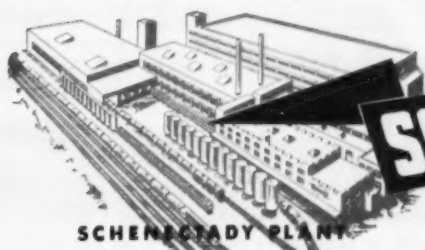
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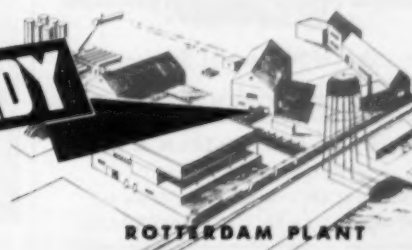
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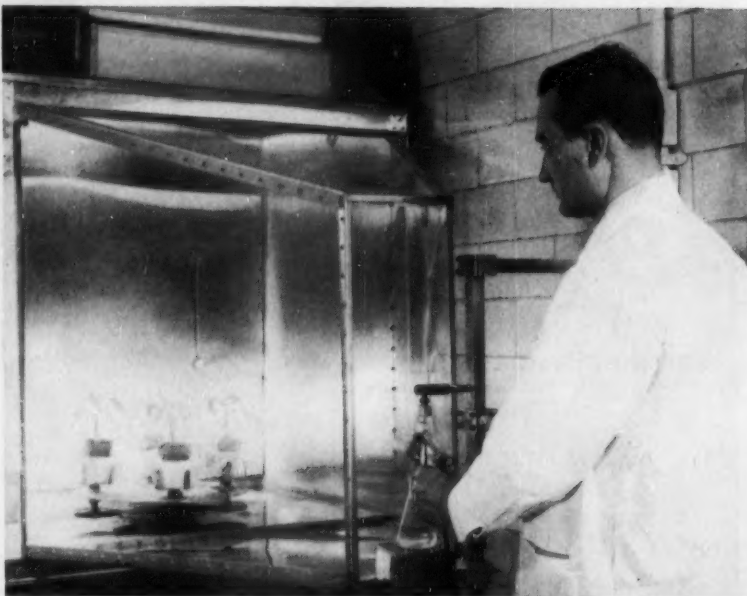
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## SPECIALTIES. . . . .



FUNGICIDE MERRY-GO-ROUND: Plants on turntable get even fungicide spray.

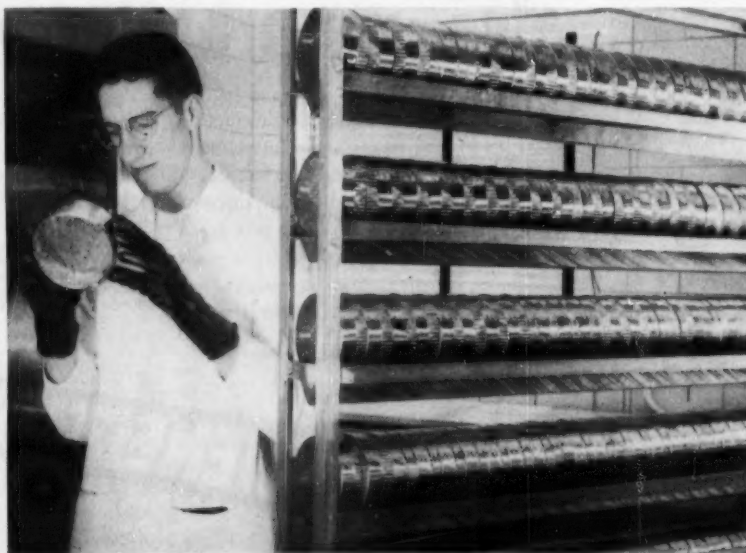
## Sifting Out the Good Ones

Agricultural chemical makers have a double problem—how to help the farmer grow more and better crops, and how to maintain profitable operations. Both call for potent new products. Last fortnight Hercules Powder Co. showed how it searches for the agriculturally valuable compounds among the 3,000-plus its labs synthesize yearly.

Compound evaluation is done at a new, \$0.5-million laboratory not far from Wilmington. A staff of 18 chem-

ists, entomologists, and plant experts headed by Elton (Woody) Woodbury screen chemicals under superb conditions that include a 6,000-sq.-ft. air-conditioned lab, greenhouses, and test plots.

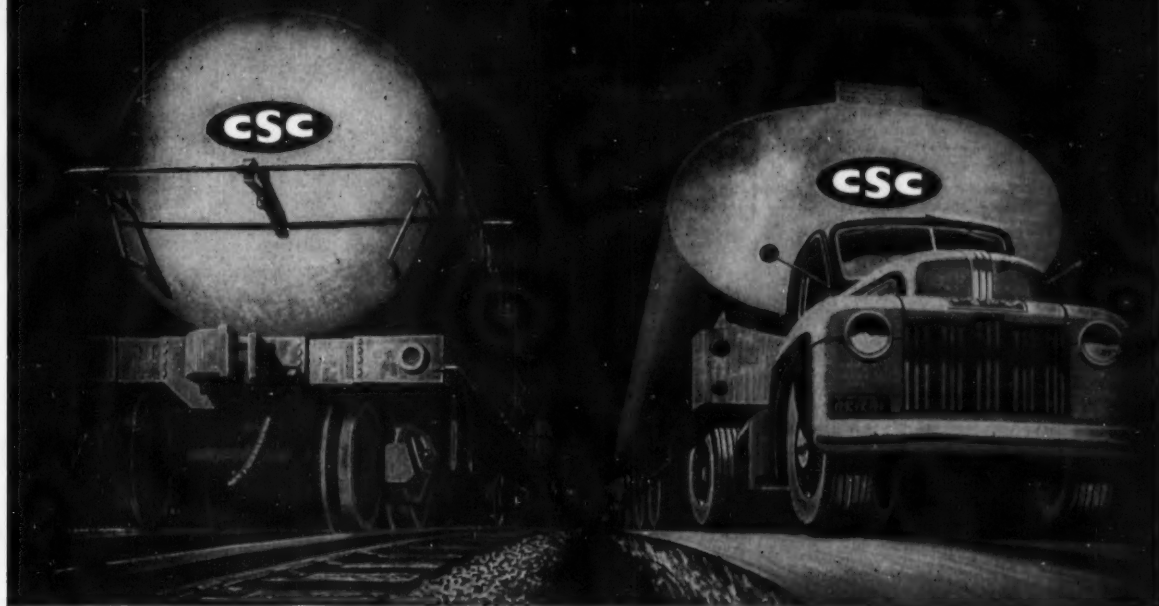
Actually in operation since last August, the new facilities consolidate Hercules farm chemical research activities that were formerly done at various public and private experiment stations. Drawing heavily on the experiences at other ag chemical labs,



CASUALTY COUNT: Dead fly total in cage shows effectiveness of insecticides.

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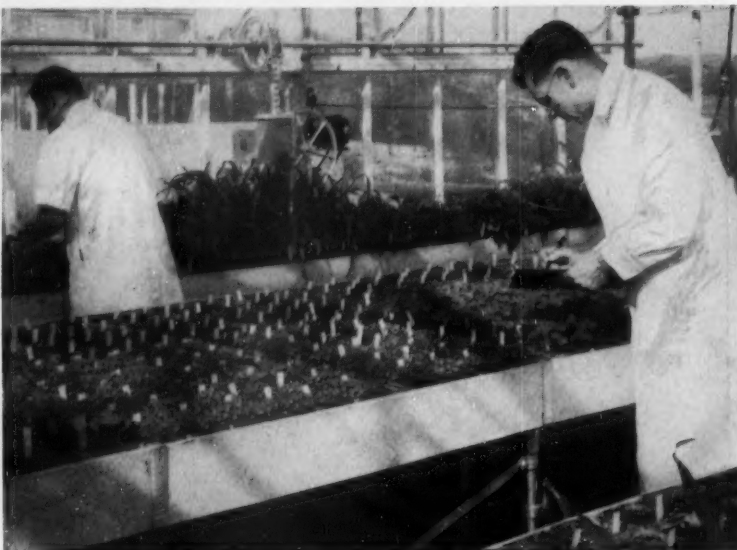
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## SPECIALTIES. . . . .



**PROGRESS CHECK:** Fungicide-treated plant's progress is matched against controls.

Hercules has also come up with some novel touches of its own in its custom-fitted research quarters.

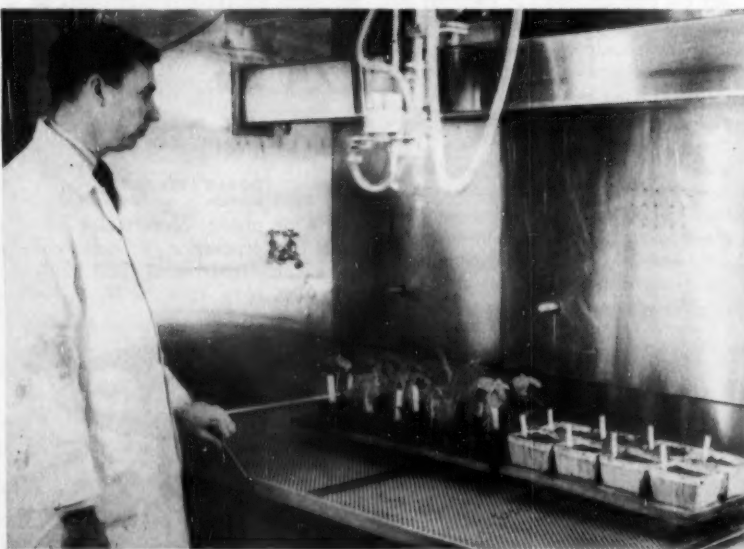
**Splendid Isolation:** In laying out the new lab, special attention was given to eliminating possibilities of contamination. The test plant was built almost a mile from the main Hercules research area, and carefully air-conditioned. So that air from one lab won't enter any other, hallway air pressure is kept above that of the rooms—opening lab doors lets in fresh air from the hall; little room air escapes to hall.

Concern about contamination accounts for the location of the herbi-

cide formulation and spray rooms, too. They're placed as far away from other testing rooms as possible.

Formulation of insecticides and fungicides is the first step in screening them. The compounds, labeled only by code number, are made into usable emulsions, solutions, or suspensions. The lab is designed to handle some 300 new compounds (not just formulations) each month.

From the formulation room, fungicides are initially screened for ability to inhibit spore germination. They're tested in various concentrations against fungus cultures grown at the lab (for special fungi, a tropical room



**WEED KILLER APPLIER:** Lab sprayer duplicates field application of herbicides.





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## SPECIALTIES. . . . .

has been included). Those that fare well are then sprayed on plants, which are raised with control plants in the attached greenhouse.

**Selected Pests:** Insecticides are matched against a cross-section of the pest population—houseflies, Mexican bean beetles, southern armyworms, and pea aphids. Special spray towers and cabinets apply insecticides to determine contact and residual effectiveness.

Test insects are reared under ideal conditions at the lab, and the hardness of the strains checked against test bugs from other experiment stations.

Herbicides, handled in their own little corner of the building, are kept in isolation during greenhouse tests, too. Like the other chemicals, the herbicides are applied with special equipment designed to give accurate dosages and still duplicate field spray equipment. Much of the apparatus is stainless steel, fabricated in Hercules' own shops.

Insecticides and fungicides that show particular effectiveness (and no phytotoxicity) throughout the greenhouse tests, along with potential herbicides, are tried out in pilot plots out doors. Surrounding the hilltop lab are the test fields. Research effects of the compounds on animals, as well as work on livestock pesticides, is not done at the lab.

Last year Hercules put roughly \$8 million into research, of which the new facilities are the most obvious example. But expensive as this work has become, it is vital that Hercules and all the other agricultural chemical companies find the chemicals that will enable the farmer to feed our ever-growing population.

**Aqua Pura:** LaMotte Chemical Products new colors, machine gray, light gray, chrome yellow, regal blue, hunter green, and cherry red, to its line of acrylic sprays. Krylon also has a new fixative for artwork.

**Nylon Resin Dispersions:** Acheson Dispersed Pigments Co. (Philadelphia) is now selling dispersions of carbon black and other pigments in nylon resin. The dry granulations have carbon concentrations up to 20%.

**Aqua Pura:** LaMotte Chemical Products Co. (Baltimore, Md.) is the latest firm to offer an ion-exchange resin type of water purifier. The unit, Min-X, sells for \$1.49, refills for 69¢.

**For Potting, Casting:** Epocast III is a new low-temperature curing epoxy

# Reviewing facts on Hydrazine...

Hydrazine is now available in several forms and in a number of derivatives. As an exceptionally effective reducing agent, oxygen scavenger and nitrogen "building block," hydrazine has many uses.

The salt derivatives make available the properties of the basic chemical. These forms may be more suitable where the process requires modified solubility or

controlled reaction. The salt derivatives may also be preferred where longer storage or less careful handling is involved.

A typical aliphatic derivative is beta-hydroxyethylhydrazine. It has specific uses and is particularly interesting as an intermediate for combinations including ethylene or ethanolic groups.

*The following hydrazine products are available in commercial quantities for full-scale industrial application.*

	FORMULA	PROPERTIES
<b>anhydrous hydrazine</b> 95% $N_2H_4$ min. tech. grade	$N_2H_4$	Colorless, mobile liquid, 8.38 lbs./gal. at 25°C., melting point 2°C., boiling point 113.5°C., completely miscible in water and methanol, flash and fire point 126°F. (open cup).
<b>hydrazine hydrate 100%</b> 64% $N_2H_4$ min. tech. grade	$N_2H_4 \cdot H_2O$	Colorless, mobile liquid, 8.61 lbs./gal. at 25°C., melting point -51.7°C., boiling point 120.1°C., completely miscible in water and methanol, flash point 163°F., fire point 166°F. (open cup).
<b>hydrazine hydrate 85%</b> 54.4% $N_2H_4$ min. tech. grade	$N_2H_4 \cdot H_2O$	Colorless, mobile liquid, 8.59 lbs./gal. at 25°C., melting point -57°C., boiling point 119.8°C., completely miscible in water and methanol, flash point 193°F., fire point 204°F. (open cup).
<b>dihydrazine sulfate</b> 95% $(N_2H_4)_2 \cdot H_2SO_4$ min. tech. grade	$(N_2H_4)_2 \cdot H_2SO_4$	White crystalline flake, 55 lbs./cu. ft., melting point 104°C. approx., decomposes at about 180°C., soluble at 25°C. 202 gms./100 gms. water, relatively insoluble in most organic solvents.
<b>hydrazine monohydrochloride</b> 95% $N_2H_4 \cdot HCl$ min. tech. grade	$N_2H_4 \cdot HCl$	White crystalline flake, 57 lbs./cu. ft. approx. melting point 87° to 92°C., decomposes at about 240°C., soluble at 20°C. 37 gms./100 gms. water, somewhat soluble in lower alcohols, insoluble in most organic solvents.
<b>hydrazine monohydrobromide</b> 95% $N_2H_4 \cdot HBr$ min. tech. grade	$N_2H_4 \cdot HBr$	White crystalline flake, 62 lbs./cu. ft. approx., melting point 81° to 87°C., decomposes at about 190°C., soluble in water and lower alcohols, insoluble in most organic solvents.
<b>beta-hydroxyethylhydrazine</b> 70% B-HEH min. tech. grade	$HOCH_2CH_2NHNH_2$	Colorless, slightly viscous liquid, 9.26 lbs./gal., 1.11 gms./cc. at 20°C., melting point -70°C., boiling range 145° to 153°C. (25mm. Hg.), flash point 224°F., completely miscible with water, soluble in lower alcohols, slightly soluble in ether.

## RESEARCH CHEMICALS

*These have been prepared in research quantities from which samples may be available on a restricted basis for special purposes. We also invite your inquiries on analogs and homologs.*

salicylalazine	thiosemicarbazide
furfuralazine	semicarbazide
cinnamalazine	hydrazodicarbonamide (biurea)
benzalazine	hydrazinocarboxylic acid (carbazinic acid)
carbohydrazide	

Further information or samples of these commercial chemicals can be supplied. To avoid delay, please request samples on your company letterhead.



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A McGraw-Hill Publication, McGraw-Hill Building, New York 36, N. Y.

### SPECIALTIES . . . . .

resin now being marketed by Furane Plastics, Inc. (Los Angeles). The resin is said to require no toxic hardening agents, and will cure in 1-3 hours at 150-200 F. Shrinkage of the unfilled resin is said to be less than 1%. Product is suggested for potting electrical components, casting, and for making laminations.

**Supercharged:** A new battery that is claimed to take a full charge in less than 30 minutes is being produced by X-L-Ko Mfg. Ltd. (North Vancouver, B. C.). Currently, the batteries are being used by Aluminum Co. of Canada to drive mine locomotives. The batteries can be charged at temperatures of boiling water without deterioration, it's reported.

Secret of the battery's durability—its guaranteed for six years—is the lead-hydrate plates, according to X-L-Ko's president, Floyd Graves. With the new plates, batteries can be recharged while the locomotive crews take rest periods, and voltage is said to remain consistently high throughout 90% of the operating discharge time.

**Release Agent:** Two silicone release agents have been developed by Dow Corning Corp. for shell molders who prefer solvent-type agents to water emulsions. The products, F-496 (containing 5% solids) and F-452 (51% solids), are suggested for deep-draw, narrow-draft patterns. One application will release up to 15 shells.

**Never Again:** Cities interested in converting sewage and waste products into fertilizer found plenty to think about in a recent talk by Ray Leary, of Milwaukee's Sewerage Commission. Leary told a Louisville, Ky., group that if Milwaukee had to do it over again, it would probably not elect to make fertilizer (sold as Mil-organite) from its wastes.

His city has invested some \$7 million in its fertilizer plants, and turns out about 185-200 tons/day. But whereas it made a profit on early operations, last year it realized only \$31.39/ton from fertilizer costing \$38.09 to make.

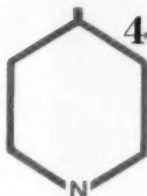
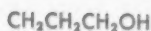
**Feet First:** First commercial products making use of the textured nylon yarn, Taslan, will be socks. Two knitting mills, Princeton Hosiery Mill, Inc. (Princeton, Ky.) and Esquire Socks (division of C. H. Roth Co., Inc., New York) have introduced lines of children's and men's anklets and half-hose. The new yarn is claimed to make a cashmere-like product.

# Reilly

## reports TO INDUSTRY

From the Research and Development Division, Reilly Tar & Chemical Corporation

Merchants Bank Bldg., Indianapolis 4, Ind.

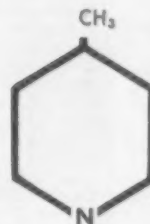


### 4-PROPANOLPYRIDINE

Interest in this compound is building up. Recently, several groups working in different fields have asked for it. We think it desirable to remind others that we have it available.

### 4-PICOLINE

Even as recently as a few months ago, 4-Picoline was a scarce item. We needed all of it to satisfy the demand for isonicotinic acid. Now, with our new plant in operation, we can synthesize enough for your needs, as well as our own. Let us know how much you need.

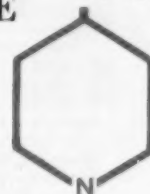


### 4-ETHYLPYRIDINE

Over the years, at the request of some of our friends, we have made 4-Ethylpyridine for them. May we make some for you?

### 4-n-PROPYLPYRIDINE

It's happened before, so this time we are prepared. Having made 4-ethylpyridine available, we'll be asked for the higher homolog. We have it.

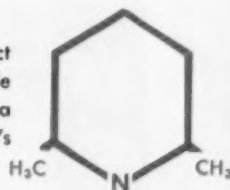


### 4-ISOPROPYLPYRIDINE

We have this compound too. In addition, we probably have some of the other 4-alkyl-pyridines you need. If we haven't the particular one you want, perhaps we can make it for you.

### 2,6-LUTIDINE

Frankly, we are embarrassed by the fact that this compound has been available for years, but we can't come up with a good use for it. Can you help us? It's available in commercial quantities.



*All of the new products from the Research Department of Reilly are available from the semi-works. Commercial production is initiated when the demand requires.*

*Undoubtedly, there are other chemicals that you need, which we can make. Let us know and we will see what we can do.*



*The Reilly Researchers*

*Reilly Coal Tar Chemicals for Industry*

# DISTRIBUTION

Commodity	Unit	Quantity		Percent of 1952	Dollar Value	
		1953	1952		1953	1952
Acetic Acid-over 65% by weight.....lb.		4,118,740	22,905,155	18.	252,857	1,456,832
Arsenic Trioxides.....clb.		9,934,212	8,966,906	105.2	574,069	547,574
Napthenic Acids.....gal.		1,229,291	1,494,998	82.3	900,754	1,081,651
Ethyl Alcohol.....gal.		8,874,148	28,679,083	30.9	1,413,751	14,282,478
Coal Tar Distil. & Mixt. —N.S.P.F.....lb.		18,411,834	25,486,658	72.0	749,102	998,127
Colors, Dyes & Stains— Coal Tar, N.E.S.....lb.		2,580,018	2,373,975	108.9	6,202,358	5,757,961
Menthol, Natural.....lb.		252,743	486,839	51.8	1,388,627	2,898,273
Iodine, Crude.....lb.		957,638	791,208	121.0	1,606,024	1,362,909
Magnesium Sulphate.....lb.		13,563,455	9,211,569	147.2	167,478	113,518
Potassium Perchlorate.....lb.		125,662	1,444,013	8.7	16,552	241,211
Argols, Under 90% potassium bitartrate.....lb.		10,661,986	6,786,475	157.1	462,613	754,429
Dead or Creosote Oil.....gal.		54,025,226	66,946,646	80.0	9,920,243	11,130,526
Cresylic Acid.....gal.		1,298,599	1,196,363	108.0	1,178,831	1,123,354
Calcium Cyanamid.....stn.		82,218	96,195	85.3	4,499,373	5,461,666
Calcium Nitrate.....stn.		67,794	39,466	171.5	2,574,658	1,490,771
Sodium Nitrate.....stn.		568,873	675,329	84.2	23,268,113	27,630,949
Ammonium Phosphates for Fertilizer.....stn.		166,497	133,316	124.8	11,419,915	8,722,516
Fish Scrap & Fish Meal.stn.		18,960	32,860	57.7	2,172,912	4,237,059
Vinyl Acetate Unpolym.....lb.		27,008,309	11,534,190	234.1	4,939,135	2,375,720
Potassium—Sodium Nitrate Mixtures— crude.....stn.		12,516	16,460	76.2	626,149	830,693
Peat Moss—fertilizer grade.....stn.		180,996	145,113	124.8	6,488,920	5,469,873
Carbon Tetrachloride.....lb.		1,467,085	3,006,899	44.8	128,396	322,320
Dextrine—from potato starch or flour.....lb.		8,034,640	4,830,791	161.0	663,001	406,604
Iron Oxide & Hydroxide —synthetic.....lb.		9,062,132	6,634,516	136.8	522,618	432,451
Barytes Ore—crude.....ltn.		298,918	96,355	311.0	2,514,828	923,336
Whiting—dry ground, or bolted.....lb.		21,454,714	24,571,613	87.7	173,720	182,860
Acetylene Black.....lb.		9,007,016	6,824,242	132.0	1,435,062	1,037,331
Antimony Oxide.....lb.		2,592,338	3,552,899	73.0	579,600	1,056,286
Sodium Sulfate—crude.ltn.		47,739	45,377	105.1	875,599	803,054
Benzene.....gal.		20,593,808	43,742,744	47.0	7,407,702	15,503,781
Sodium Silicofluoride.....lb.		5,725,839	2,533,961	226.0	200,044	110,692
Potassium Chloride.....stn.		173,154	280,179	61.6	4,504,876	7,538,286
Sodium Cyanide.....lb.		128,825,245	133,649,049	96.3	6,564,660	6,236,144

Analyzed in a country-by-country commodity breakdown, some of the more noteworthy changes shape up like this:

**NAPHTHALENE:** Despite a drop in price from 6.3¢/lb. in 1952 to 3.4¢ in 1953, imports fell off about 10%. A condition of oversupply in this country doubtless contributed much to cutting the value of 1953 total to only 49.8% of the previous year's.

Commodity	Unit	Quantity		Percent of 1952	Dollar Value	
		1953	1952		1953	1952
Napthalene (Solidifying under 79 C).....lb.						
Canada.....		—	2,512,827	—	—	154,130
Chile.....		—	400,217	—	—	27,932
Brazil.....		—	440,920	—	—	35,000
Denmark.....		—	66,138	—	—	2,843
U. Kingdom.....		13,396,495	17,563,936	76.2	411,331	919,869
Nethlds.....		6,730,499	3,704,370	181.0	229,335	206,302
Belgium.....		16,155,390	16,976,127	95.0	515,689	1,024,418
France.....		5,210,908	6,533,481	79.7	155,451	427,577
W. Germ.....		41,073,321	39,030,495	105.0	1,542,572	2,549,083
E. Germ.....		—	220,460	—	—	11,023
Austria.....		—	245,741	—	—	18,809
Czecho.....		—	551,150	—	—	71,750
Switzld.....		218,443	989,450	22.1	12,014	63,933
Japan.....		551,100	2,767,507	20.0	15,155	288,299
U. So. Africa.....		—	100,179	—	—	15,257
Total.....		83,336,106	92,103,088	90.1	2,881,547	5,816,225

## Import Score

Ever since the Commission on Foreign Economic Policy (Randall commission) reported its tariff recommendations to President Eisenhower last January, the battle of "free traders" versus "protectionists" has been shaping up. And regardless of the outcome of the tariff program, it seems certain that the proposals to reduce existing rates will be hotly disputed. Just how well the import business has been functioning over the past year under the existing rates can now be determined from the newly compiled (but as yet unofficial) 1953 figures.

For all commodities, U.S. imports, totaling \$10.9 billion, were up slightly from the preceding year. And, although volume rose about 6% above 1952, a decline in prices shaved the increase in value over 1952 to a mere 1½%.

However, these relatively slight increases mask the selective ups and downs registered in particular classifications. The chemical industry was definitely in the "up" category—one of classes reporting a sizable rise both in volume and in value of imports.

Official U.S. Dept. of Commerce figures will probably be published about the middle of next month. Meanwhile, CW has compiled an unofficial list of the large volume chemical imports, together with corresponding 1952 figures.

**More Ups:** Of the 44 commodities included in the tables (selected principally on the basis of volume and value), 25 registered gains, 19 lost ground. Closer inspection of individual items, however, reveals that, as a whole, the gains were much more significant than the declines. Many of those items that dropped from 1952 to 1953 fell into special cases.

In particular, of the 19 "downs":

- Four declines were less than 10%.

- At least two other items were derived principally from only one country.

- Another resulted from a poor supply situation.

Many of the gains, on the other hand, were both substantial and likely to continue. Some high points:

- Rise of several multimillion-dollar items to double their 1952 totals.

- Resurgence of West Germany in overseas trade.

- Appearance or reappearance of countries not represented in 1952, including several from behind the Iron Curtain.





## Here's a new source for caustic soda

If your plant is in this area you can now have liquid caustic soda delivered more rapidly, more dependably, than ever before.

Here's what this new Hooker caustic soda plant at Montague, Mich., means to Midwest industry:

- 1. Fast delivery.** You can have caustic soda delivered by tank car, loaded and dispatched within 24 hours of your call. In and near Chicago, tank car deliveries are made from Chicago stocks.
- 2. Freight savings.** Depending on locality, you can save up to \$2.84 per ton on freight. (To learn specific freight savings to your plant, just phone the Chicago office—CEntral 6-1311.)
- 3. Dockside delivery.** On Lake Michigan and adjacent waterways you can have Hooker caustic delivered by barge—a

new Hooker service (minimum 250 tons, dry basis). Savings are substantial.

- 4. Prompt service you can count on.** At the Hooker sales office, 1 N. LaSalle St., Chicago, men are ready to help you plan efficient handling and storage, meet emergency needs, work out the most economical purchasing and delivery arrangements.
- 5. Smoother, better processing.** You can use constant processing methods, and get consistent results with Hooker caustic soda. It's produced under careful control; more than 20 separate inspections and analyses protect its uniformity.

**Tighten up your caustic supply line now**  
Many industrial leaders in the Midwest are already enjoying the convenience,

economy, and dependable supply of Hooker caustic shipped from Montague.

You can have the same convenience and security *tomorrow*. Just pick up your phone and call us.



Caustic soda for Midwest industry comes from this new \$12 million Hooker plant at Montague, Mich. The plant is built over a tremendous bed of pure salt, which supplies the caustic-producing cells.



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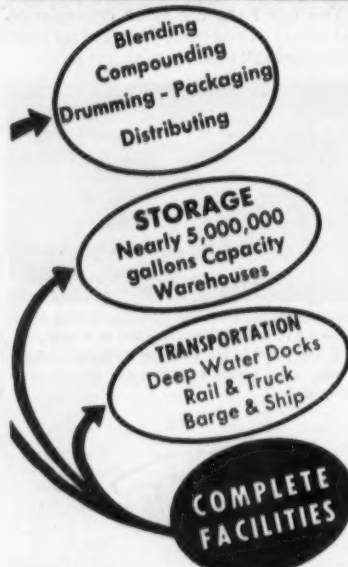
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## DISTRIBUTION . . . . .

**GLYCERINE:** Much of the 208.3% volume gain stemmed from seven countries. West Germany, India and Indonesia, not on the 1952 roll, each exceeded the million-pound mark. Argentina, with over 8 million lbs. topped the list. France and Mexico made huge percentage gains. Pricewise, Mexico and Indonesia, selling at 16.4¢ and 16.3¢/lb., ran a third under the 24.1¢/lb. average import figure.

Commodity	Unit	Quantity		Percent of 1952	Dollar Value	
		1953	1952		1953	1952
Glycerine—crude.....lb.						
Canada.....		513,797	3,983,528	14.75	111,367	292,968
Mexico.....		1,780,786	87,236	2040.	7,218	814,124
Panama.....		39,472	40,073	98.5	74,966	28,933
Cuba.....		3,387,922	2,967,287	114.1	1,991,154	22,672
British W. Indies....		295,385	156,664	188.5	1,829	99,094
Peru.....			219,909		554,471	
Brazil.....		116,376	114,640	101.5		
Argentina.....		8,322,541	4,135,170	201.2		
Ireland.....		87,786	22,988	381.8		
Netherlands.....		6,722	12,456	54.		
Belgium.....		262,968	446,331	58.9		
France.....		1,986,292	43,008	4618.		
Portugal.....			45,190			
Italy.....			61,729			
Thailand.....		691,467	247,642	280.3		
Philippine Republic..		5,567,494	5,454,423	101.3		
Guatemala.....		291,363				
W. Germany.....		1,515,606				
Yugoslavia.....		44,092				
Iraq.....		88,019				
India.....		5,273,716				
Br. Malaya.....		183,357				
Indonesia.....		2,635,920				
Australia.....		696,527				
Fr. Morocco.....		143,085				
Egypt.....		419,275				
Br. Nigeria.....		475,131				
Bel. Congo.....		21,392				
Uruguay.....		605,925				
Denmark.....		137,392				
Curacao.....		437,681				
Total.....		36,543,776	17,538,274	208.3	8,791,535	3,784,833

**POTASSIUM CYANIDE:** Largest volume gain was posted by the United Kingdom, which tripled its 1952 shipments. West Germany, however, continued as number one foreign supplier.

Potassium Cyanide....lb.					
U. Kingdom.....	1,086,950	354,798	305.0	418,196	149,162
Nethlds.....	34,009	24,543	139.0	12,123	9,543
Belgium.....	24,603	36,029	68.3	12,049	23,161
France.....	154,322	26,475	582.9	60,150	10,260
W. Germ.....	1,378,260	1,121,663	122.9	485,885	457,990
Czecho.....	121,968	135,591	90.0	41,494	47,350
Switzld.....		17,637			7,200
Italy.....	8,818	101,166	8.7	3,288	30,724
Total.....	2,808,930	1,817,902	154.5	1,033,185	735,390

**UREA:** Contributing to a 292% volume increase, Norway, the United Kingdom, West Germany, Italy and Japan all made impressive gains. A future battle for trade in this commodity seems to be inevitable.

Urea, NES.....stn.					
Canada.....	14	19	73.7	743	3,418
Norway.....	12,799	5,247	243.	1,522,321	617,396
Denmark.....	17	7	243.	1,810	1,542
U. Kingdom.....	33,566	15,458	217.	3,392,267	1,537,334
Netherlands.....	721	525	137.5	81,776	52,134
Belgium.....	906	346	262.	83,631	41,386
France.....	3,651	3	12,160.	449,268	837
W. Germ.....	13,129	3,122	420.	1,404,608	356,585
Switz.....	3,628	2,766	131.	380,122	284,682
Italy.....	9,881	1,909	514.	1,865,668	200,948
Japan.....	9,406	663	1420.	1,083,792	75,070
Sweden.....	191			29,794	
E. Germ.....	55			7,050	
Total.....	87,975	30,065	292.	9,297,336	3,171,332
Potassium Nitrate, crude.stn.					
Chile.....	12,516	11,354	110.5	626,149	439,206
Nethlds.....		5,265			278,534
W. Germ.....	15,937	9,100	175.2	852,430	484,298
Canada.....	4			160	
Total.....	28,457	25,719	111.0	1,478,739	1,202,038

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## DISTRIBUTION . . . . .

**PYRIDINE:** When the U.S. supply went from short to long in 1953, low-price West Germany material, offered at \$2.42/gal., made great volume gains at the expense of higher priced offerings from other countries.

Commodity	Unit	Quantity		Percent of 1952	Dollar Value	
		1953	1952		1953	1952
Pyridine.....	gal.					
U. Kingdom.....		5,131	8,905	57.5	42,792	152,574
Nethlds.....		30,006	28,522	105.5	133,067	295,607
Belgium.....			368			4,147
W. Germ.....		8,803	750	1172.0	21,494	10,157
Australia.....		3,472	3,565	97.2	20,605	32,006
Austria.....			216			1,900
Switzld.....			529			9,682
Japan.....			2,832			8,267
Total.....		47,412	45,687	103.8	217,958	514,340

**ACETANILIDES**—Not Medicinal: With the demand up somewhat, top gainer was the United Kingdom. Selling at an average of 60.5¢/lb. as compared with the over-all import price of 81.7¢, the U.K. almost tripled its exports to this country.

Acetanilides—not Medicinal.....	lb.					
Sweden.....			22,134			45,314
U. Kingdom.....		835,520	305,078	274.0	504,916	298,752
Nethlds.....		36,292	88,205	41.1	10,725	71,396
Belgium.....			32,231			8,009
France.....		250,000	100,220	250.0	215,004	86,103
W. Germ.....		492,656	687,066	144.0	932,454	593,264
E. Germ.....		100			188	
Switzld.....		138,778	40,472	343.0	171,800	51,417
Italy.....		6,001	1,102	546.0	12,302	507
Canada.....		14			48	
Total.....		2,259,361	1,276,508	177.6	1,847,432	1,154,762

**TRICHLOROETHYLENE:** Striking gains were made by countries exporting to U.S. Outstanding was Italy's jump in volume. Offering its product at bottom price of 5.2¢/lb. versus an average price of 9.1¢, Italy's poundage was second only to the Canadian total.

Trichloroethylene.....	lb.					
Canada.....		6,393,948	3,830,101	167.0	870,512	488,256
U. Kingdom.....		4,660,307	831,144	560.8	344,382	60,929
Nethlds.....		815,940	55,556	1467.0	56,073	4,644
Italy.....		4,660,578	340,332	1369.0	244,205	41,707
W. Germ.....		488,678			34,272	
Total.....		17,090,328	5,057,133	337.9	1,563,334	595,536

**AMMONIUM SULFATE:** 1953 volume more than doubled the previous year's total. Big gainers were West Germany and Belgium, whose shipments, priced at an average \$43.10/ton, gained partly at the expense of 1952 leader, Canada, whose material sold at an average of \$46.90/ton.

Ammonium Sulfate.....	stn.					
Canada.....		150,374	191,961	78.9	7,054,300	8,856,046
U. Kingdom.....		3,000	14,827	20.2	134,817	709,997
Nethlds.....		6,658	275	2420.0	284,007	12,088
Belgium.....		115,636	8,657	1330.0	4,984,299	428,964
W. Germ.....		150,869	16,177	933.0	6,492,422	820,630
E. Germ.....		39,080	6,166	633.0	1,365,139	275,001
Italy.....		30,512			1,241,142	
Bulgaria.....		27,729			1,216,720	
Total.....		523,828	238,063	220.0	22,772,920	11,102,726

**AMMONIUM NITRATE & MIXTURES:** West Germany and the Netherlands posted substantial gains in 1953, average prices from these countries being only about two-thirds the Canadian price.

Ammonium Nitrate & Mixtures — over 20% Nitrogen.....	stn.					
Canada.....		249,218	242,810	102.6	16,743,526	15,869,706
Nethlds.....		202,722	100,364	202.0	8,957,809	5,131,564
W. Germ.....		200,567	38,627	518.0	9,283,411	1,909,082
Austria.....		55,018	72,384	76.2	2,113,920	3,380,484
Belgium.....		36,661			1,876,428	
Switzld.....		650			58,635	
Italy.....		10,251			385,519	
Total.....		755,087	454,185	166.3	39,438,733	26,290,836

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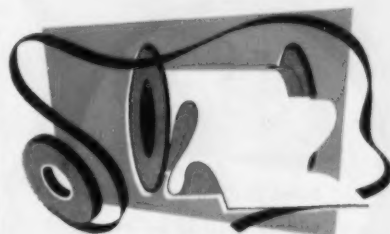
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The non-drying properties of Oronite Polybutenes make them useful in conjunction with oils and fillers in permanently pliable sealing compounds. Their low temperature flexibility characteristic makes them ideally suited as binders in both knife grade and gun grade types of calking compounds, or the related sealing, insulation or sound deadening mastics. Being competitive in cost with most blown vegetable oils, a proper balance of fillers, oil and Oronite Polybutene can provide most any desired characteristic. Being natural moisture barriers they improve the water resistance of crack-sealing compounds. Write any Oronite office for complete information.

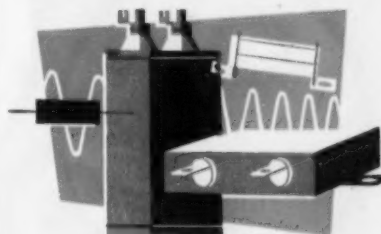
## ORONITE CHEMICAL COMPANY

38 Sansome St., San Francisco 4, Calif. • 714 W. Olympic Blvd., Los Angeles 15, Calif.  
30 Rockefeller Plaza, New York 20, N. Y. • 600 S. Michigan Ave., Chicago 5, Ill.  
Mercantile Securities Building, Dallas 1, Texas



### ADHESIVES

Easily incorporated into rubber base stock, either by milling or solvent pick up, Oronite Polybutenes have a wide acceptance in the formulation of pressure sensitive adhesives, industrial tape, surgical tape masses, colorless label adhesives and cements.



### ELECTRICAL INSULATION

Oronite Polybutenes offer superior dielectric strength, low expansion coefficient and low power factors—all essential in paper-insulated electrical products. Their low power factor values, over a wide frequency range, make them useful as a dielectric in condensers and capacitors. Stability of this power factor is maintained over long periods of time.

### OTHER ORONITE PRODUCTS

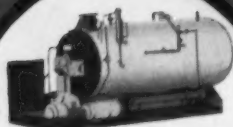
Detergent Alkane  
Detergent Slurry  
Detergent D-40  
Detergent D-60  
Dispersant NI-O  
Dispersant NI-W  
Wetting Agents  
Cresylic Acids  
Gas Odorants  
Lubricating Oil Additives  
Sodium Sulfonates  
Purified Sulfonates

Phenol  
Naphthenic Acids  
Phthalic Anhydride  
Maleic Anhydride  
Para-Xylene 95%  
Oronite-Xylene  
Xylol  
Aliphatic Acid  
Acetone  
Hydroformer Catalyst  
Dispersant FO  
(Furnace Oil Inhibitor)

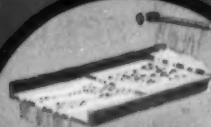


# Maas SODIUM SULFITE

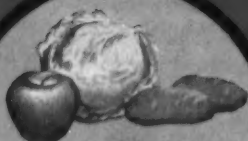
Serves many industries  
BETTER



Maas Sodium Sulfite is widely used in boiler water treatment.



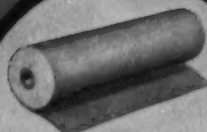
Maas Sodium Sulfite is an excellent selective depressant in ore flotation.



Maas Sodium Sulfite helps food processors with quality control.



Maas Sodium Sulfite helps natural and synthetic rubber reclaimers.



Maas Sodium Sulfite helps make better paper.

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Division Victor Chemical Works  
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SOUTH GATE, CALIFORNIA



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Sodium phosphates—  
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and stock feed grades)—Potassium  
phosphates—Phosphoric acid—Surface  
active agents—Oxalic acid—Oxalates—  
Formic acid—Formates—Acetic acid  
—Sodium hyposulfite—Sodium sul-  
fite—Sodium carbonate—Trietha-  
nolamine phosphate—a full range  
of photo pure chemicals—  
and many more.

## DISTRIBUTION . . . .

For the Bookshelf: Among the current offerings:

- Brothers Co. (Orange, N.J.): a new catalog listing 2,500 fine organic chemicals with structural formulas and technical information.

- Arapahoe Chemicals, Inc. (Boulder, Colo.): four technical bulletins; subjects: bromantins, lead tetraacetate, 1,2-dimethoxyethane, and n-bromoacetamide.

- Fulton Bag and Cotton Mills (New Orleans, La.): a new booklet on "Safe Storage Tips For Multiwall Paper Bags." Storage and handling procedures to give maximum bag life.

- United States Potters Assn. (E. Liverpool, O.): two booklets comparing porcelain and plastic pottery. On the mailing lists are womens' clubs, service organizations, department store buyers. The titles: "Facts You Want To Know About China and Plastic Tableware" and "A Comparison of Plastic and Ceramic Dinnerware."

- Bakelite Co. (New York): a brochure, "Bakelite Polyethylene," gives properties and suggested applications of polyethylene resins and compounds used in molding and extrusion. A data sheet, No. 6509, describes a mechanized shell molding foundry and its use of resins.

- Kaiser Steel (Oakland, Calif.): a brochure, "The West Coast . . . Its Industrial Potential," presents statistics on employment, income, market, and transportation facilities.

**Foreign Trademark Trouble:** Imports stopped by customs because of trademarks similar to those previously registered are on the increase. Here's how to avoid the difficulty:

Make a search of U.S. registrations, the cost is low. Register your own mark here. All that's required is to register at home or arrange sale of trademarked goods here and to file an application with the Commissioner of Patents in Washington.

**Plastic Shift:** Zenith Plastic Co. Gardena, Calif.), makers of reinforced plastics has combined its aircraft engineering and fabrication works into a new division, Zenith Aircraft. Growing demand for the strengthened plastic prompted the move.

**Navy Sales:** A new revision of "Selling to Navy Prime Contractors" is out. Small manufacturers seeking subcontracts will find the "who, what and where" helpful. Catalog No. D. 201. 2:Se 4/2/954, Government Printing Office, Washington 25, D.C.



"what's all this  
**YAK, YAK**  
about  
**COLD**  
rubber?"



That's easy, chum! More and more manufacturers are talking about Norwalk's 100% Cold Rubber Soling. Because it's more flexible, handles better, faster at every production step. It's the finest soling made — bar none! And only Norwalk has it. All materials are new! No scrap, no reclaimed or reprocessed rubber, no buffing dust. Shoes soling with Norwalk's 100% Cold Rubber Soling is a every bottom-up test. Perfect color match, uniform finish, longer, better wear. Material they're best-sold! Every type of Norwalk soling — 100% Cold Rubber — in all wanted iron sizes, 9 to 14. Write or call us today for more information.

**NORWALK SOLING**  
100% COLD RUBBER

**CUSHIONAIRE**  
SOLING  
Finest steps on the market. Light weight, will cushion practically any type of foot for all types of shoes, sandals, slippers.

We use 100% Cold Rubber in Norwalk Flock Soling, Com position Soling, Heel Stock and New-Tone, the finish that has set a new style in soling. Investigate Norwalk Cushionaire — the finest soling on the market.

**THE ARMSTRONG-NORWALK RUBBER CORP.**  
NORWALK, CONNECTICUT  
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Plants at: Norwalk & West Haven, Connecticut; Hattiesburg, Mississippi; and Des Moines, Iowa.

One of a series  
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of The Armstrong-  
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## "We're HOT on **DAREX 43G** for shoe sole compounding!"

One of the reasons why famous-for-wear Norwalk Solings keep a step ahead is the use of DAREX 43G High Styrene Copolymer in the compounding process.

DAREX 43G imparts both higher hardness and unusually long flex life to shoe soles. Abrasion and tear resistance are also superior. Furthermore, stocks compounded with DAREX 43G show exceptional stability in prolonged storage, giving better mold flow with more flexible production schedules.

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IS A PRODUCT OF  
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Gives higher hardness and  
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with NO LOSS OF FLEX LIFE.

FOR FLOOR TILES, TOO!

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## CRESYLIC ACIDS

Immediate and Continuous  
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Nature's answer  
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**NORCO BARRELS . . .** for a first rate job with lower cost to you — For shipping or storing your hard-to-hold chemicals, liquids or foods—NORCO Douglas Fir Barrels and Kegs are tops. For years Douglas Fir Barrels and Kegs, built by NORCO, have proven better for handling products such as Phosphoric Acid, Acetic Acid, Sodium Acetate and Oxalic Acid Solutions, to name but a few.

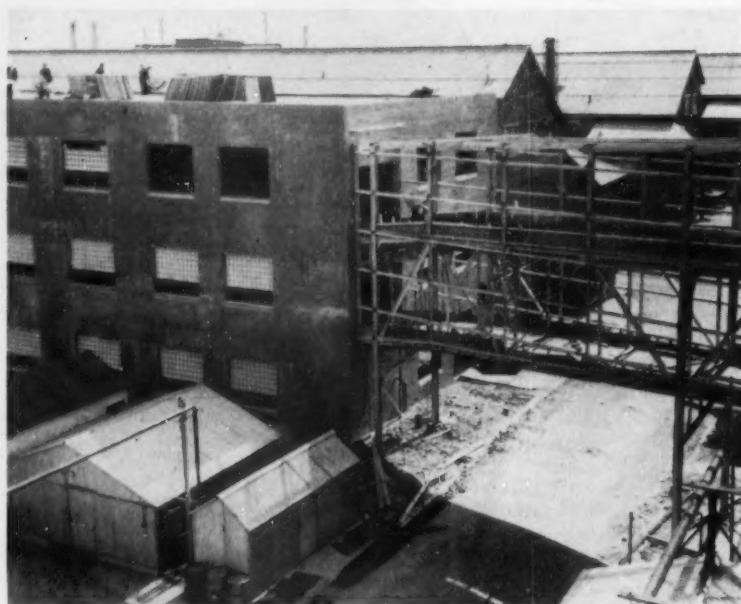
Douglas Fir is tight grained, non-porous, with a minimum of shrinkage and swelling. Tough and durable—yet light with low tare weight. Inexpensive . . . no deposit problem—good resale value. In 5-10-15-30-50 gal. sizes . . . NORCO Barrels and Kegs are always new . . . specifically lined for your product . . . available in I.C.C. specifications.

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Division of The Graft Bros. Cooperage Corp.  
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Largest variety of wooden barrels and kegs in America

## DISTRIBUTION . . . . .



EXPANDING AT MARCUS HOOK: General Chemical adds more space . . .

### For a Bulging Line

Twofold consequences of a vast step-up in a 1,000-item production line: warehouses are apt to bulge badly, and the service system may start to stagger. That's the possibility that recently confronted Allied Chemical's General Chemical Div.

Upshot: a \$750,000-dollar expansion in its Baker and Adamson Works (Marcus Hook, Pa.) warehousing, shipping and packaging setup. By autumn 1954, General Chemical will have doubled present facilities with:

- a three story annex to the main packaging and shipping building;
- a one story annex and tank farm for packaging and storing flammable liquids;
- new equipment and a special loading platform packaging and shipping corrosive chemicals;
- enlarged transportation facilities;
- a two-level enclosed bridge joining the central receiving depot and warehouse to the packaging and shipping buildings.

### Cheaper Selling

Close to 1,000 sales executives will seek ways to stretch their sales dollars when the American Management Assn. meets in New York on May 10-11. Case histories from nine companies will stress the efficient use of marketing budgets, tested techniques of regulating marketing costs and methods of measuring performance. Some highlights slated:

• Are You Operating in Profitable Markets?—Thornton Beall, manager, marketing distribution, Shell Oil Co.

• How Effective Is Your Marketing Department?—Robert F. Dick, vice-president, Illinois Tool Works.

• Customer Services That Produce Economies—Ralph F. Hansen, manager, marketing department plastics division, Monsanto Chemical Co.

• Sales Meetings Must Justify Their Cost—Theodore T. Miller, vice-president, marketing, Dewey and Almy Chemical Co.

• How to Keep a Firm Grip on Inventory—Thomas A. Buckley, vice-president, sales and marketing, The Vendo Corp.

### Trucking Trends

By and large, the trucking industry is having a good year in the state legislatures. Both New York and Mississippi passed favorable legislation; Michigan and Massachusetts are thinking of doing so. Nowhere throughout the nation have adverse bills been placed on governors' desks.

• In New York, the legislature upped gross vehicle weight to 65,000 lbs. from 63,000 and, effective in 1960, cut the allowable length of tractor semitrailer combinations from 50 to 45 ft. Current limits of 22,400 lbs. on single axles and 36,600 lbs. on tandem remain unchanged. Contrary to the first impression, the new length will work no hardship. Trucking men point out that few N. Y. operators are over 47-48 ft., that they have five

# Rubbish Disposal is only ONE of the Cost Cutting jobs for the Dempster-Dumpster in your plant...



It's amazing, almost to the point of fantasy, yet so soundly real, what the minds of men in all types of industry have cooked up for more efficiency and reduced costs with the Dempster-Dumpster.

Hundreds of plants are handling materials of practically every description with one truck-mounted Dempster-Dumpster serving scores of detachable containers. Here are just a few. Oils, gases, and liquids handled in our Tank Type Containers . . . tools and equipment in our Tool Shed Type Container . . . containers on casters placed for receiving steel chips from lathes or at conveyors for receiving finished products . . . container with doors and windows, replacing shacks for plant guards or nightwatchmen . . . containers built to handle chlorinator ash residue of approximately 1500° F. and there are dozens more.

Containers are placed wherever material accumulates. When loaded each is picked-up, hauled and emptied (as illustrated above) . . . or load set down intact. The entire op-



eration is handled by only one man, the driver, by hydraulic controls in cab.

The containers are built in capacities up to 12 cu. yds. and each is designed to suit the materials to be handled—be they bulky, light or heavy . . . solids, liquids or dust.

One Dempster-Dumpster, with driver, does the work of 3 to 5 conventional trucks . . . eliminates trucks and crews standing idle . . .

eliminates rehandling of materials and increases efficiency and good plantkeeping.

If you have even any remote idea that this equipment could be adapted to your operation, by all means contact us because being without the Dempster-Dumpster System could easily be costing your company thousands of dollars annually. Manufactured and sold exclusively by Dempster Brothers, Inc.



One Dempster-Dumpster Handles All Containers . . . All Sizes . . . All Designs

**DEMPSTER BROTHERS, 244 Dempster Bldg., Knoxville 17, Tenn.**



**There's only ONE move  
to make, when every  
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Cincinnati 2 Phone: DUnbar 2900  
Chicago 7 Phone: WAbash 2-2211

**Baltimore & Ohio  
Railroad**

*Constantly doing things — better!*

**DISTRIBUTION . . . .**

years to use up their old equipment, that the cab-over-engine tractor will enable them to stay within 45 ft. and still increase the payload 20%.

- Mississippi legislators raised gross weights 2,330 lbs. from the present 52,260 figure and also jumped tandem axle limits from 28,650 to 32,000 lbs. These weights are legal, however, only on highways specified by the State Highway Commission.

- Currently awaiting action by the Michigan House after highballing through the Senate is a bill extending length limits to 56 ft. from 50 ft. It's needed, claim its backers, to allow continued use of equipment operating by Presidential directive at lengths up to 60 ft.

- Up for consideration in Massachusetts is a proposal jacking gross weights from 50,000 to 60,000 lbs. The State Registry of Motor Vehicles likes the bill, but the Health Dept. wants a delay to mull it over.

- Down South, in Kentucky and Virginia, weight liberalization ran afoul of weight tax proposals, and both issues in both states were shelved. Kentucky's governor may call a special session after the forthcoming governors' conference to consider trucks, taxes and weights.

- Heavy trucks operating in Kentucky border cities have been exempted from the states weight tax in a law effective June 17. Exemptions are extended to trucks from states without a reciprocity pact with Kentucky.

- Recent ruling of the Minnesota State Railroad and Warehouse Commission allowing truckers to haul less-than-carload-lot freight at railroad rather than truck rates will be challenged in court. The decision, which would let the Spellacy Motor Cargo Co. truck freight between Minnesota railway depots at rates lower than those of independent haulers, faces strong opposition from the Minnesota Motor Transport Assn., which feels that independent truck lines will be strangled by railroads' toting rail freight by truck at less than the actual cost of truck operations.

- Also in for a fight is an Arkansas law limiting truck weights. Bone of contention: certain privileges granted trucks transporting oil field equipment. Construction company officials and rice farmers claim discrimination.

- Wyoming has given intrastate carriers a 10% rate boost. Affected are point-to-point and distance class rates; C.O.D. and storage charges; special class rates lower than point-to-point rates.



## How "Dutch Boy" Chemicals help the flooring industry preserve the beauty of vinyl products

Asbestos is an ideal filler for vinyl flooring products.

Yet, within this natural mineral, iron and other impurities sometimes are trapped. They raise hob with color . . . or did, until just a little over three years ago.

Then National Lead Research developed *Normalasol* . . . a "Dutch Boy" Chemical whose color stabilizing action in asbestos-filled compounds is specific . . . and unduplicated. It prevents color changes, preserves the beauty of floor tiles, table tops and other highly loaded semi-rigid vinyl products.

Elsewhere in the vinyl resin field, eleven other "Dutch Boy" Stabilizers are widely used. Each is a specific for problems of discoloration or deterioration occurring from process heat, during shelf life, or in ultimate consumer use. These versatile "Dutch Boy" Chemicals are behind recent improvements in unbreakable records, belting, shoes, luggage, films and sheetings, electrical insulations, tubings and similar products.

**You may want to explore . . .** "Dutch Boy" Stabilizers in your own production . . . or new "Dutch Boy" Plasticizers, that give a unique balanced combination of low volatility and low temperature flexibility . . . or "Dutch Boy" Bentones, recently developed "short" gellants for organic compounds . . . or special National Lead chemicals, like lead hyposulphite or chromic phosphate. Simply fill out coupon and mail with your letterhead.

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*Gentlemen:*

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**Dutch Boy  
CHEMICALS**

*...and get the plus  
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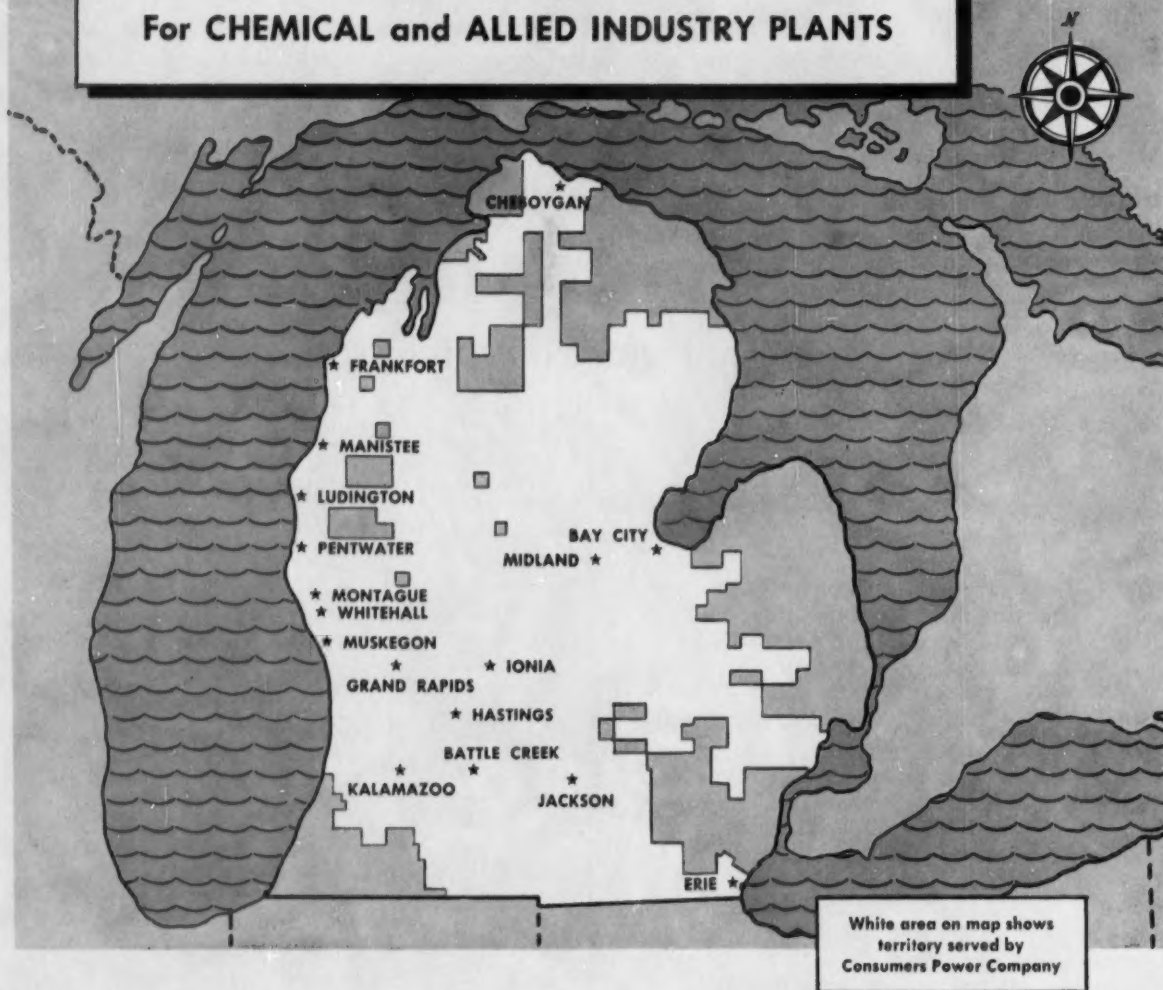
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Here in Outstate Michigan You Will Find  
*The Site of Sites*  
 For CHEMICAL and ALLIED INDUSTRY PLANTS



It takes a specific location with proper facilities TO FIT YOUR NEEDS. Write us YOUR REQUIREMENTS.



One of the world's great chemical companies developed from a single brine well at Midland, Michigan. Another outstanding chemical company, attracted by Outstate Michigan's vast underground salt beds and the availability of water transportation, is completing a large plant at Montague, Michigan. Other prosperous chemical companies are to be found in many Michigan communities.

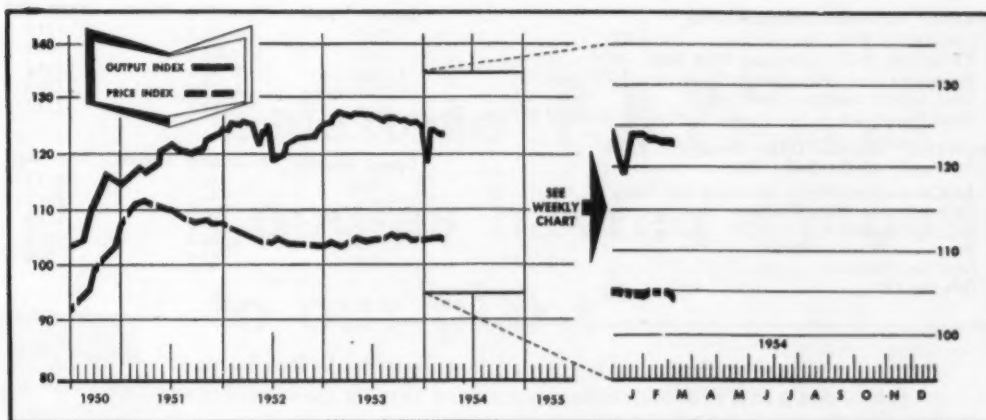
There are plenty of good sites left, some of them (but by no means all) in the cities indicated on the map. And remember, Michigan has the greatest fresh water supply in the world — water for industry, water for transportation, water for recreation — plus an ideal location in the very heart of America.

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 INDUSTRIAL DEVELOPMENT DEPT.

**CONSUMERS POWER COMPANY**  
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# MARKETS . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries  
 CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

## MARKET LETTER

Supplies are ample to meet most current customer demands. That, in essence, sums up the market condition of practically all chemical commodities.

For instance, glycerine producers, while on the one hand presently plagued by a growing dearth of reasonably priced crude material, at the same time tick off a fistful of reasons behind this week's low-key level of calls for refined glycerine.

Most potent sales-depressants, probably, are slackening defense-spawned requirements (e.g., explosives manufacture), as well as the generally slackening of volume of business for many glycerine products.

Add too, the persistent competition from other polyols, which are partly replacing glycerine in some formulations, and the picture, while not too depressing, is still not so bright as glycerine sellers would like to see it. Price patterns of synthetic and dynamite grade—set at 30¢/lb. (tanks) after the 4¢/lb.-cuts several weeks ago (CW Market Letter, Feb. 27)—are not expected to change—at least not in the immediate future.

But if a few more plasticizers aren't sporting lower prices by the time you read this, chances are they will be soon. Last week's flurry of slashes in the field (CW Market Letter, April 17) have trade observers convinced that tricresyl phosphate and dibutyl phthalate will undergo a similar downward shove.

Although TCP gasoline-additive use is holding up fairly well, the "plastics" outlet demand is still far from brisk. The dibutyl market, too, is easier than it has been in the recent past.

And hanging over the ethyl alcohol market is an uncomfortable surfeit of production—in some instances great enough to warrant unloading into the export market at a sacrifice. But although more than one producer is beset with a too-abundant stock problem, it's unlikely that there'll be any near-future cut in established manufacturers' (synthetic or fermentation) schedules.

## MARKET LETTER

### WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.1	123.2	127.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.3	104.3	104.5
Bituminous Coal Production (daily average, 1,000 tons)	1,110.0	1,113.0	1,414.0
Steel Ingot Production (1,000 tons)	1,634.0 (est.)	1,622.0 (act.)	2,276.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	292.2	285.7	251.1

### MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949=100)

	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	114.3	114.4	113.4
Chemicals and Allied Products	107.4	107.5	104.2
Industrial Chemicals	117.9	118.4	113.9
Drugs and Pharmaceuticals	93.9	93.9	91.6
Fertilizer Materials	60.5	63.5	59.0
Oils and Fats			

Hard-rock economic reason: last month's decline brought selling prices down to a profit-squeezing point; any further cuts could easily shove alcohol-making into a red-ink operation.

No-profit production is behind American Viscose Corp.'s notice last week that its Marcus Hook (Pa.) plant is slated for an output shut-down. The move comes as no surprise to rayon industry observers because production at the plant has been grinding toward a halt since last fall.

No date for the closing has been set, nor is there any word yet as to final disposition of the old-time rayon producing facilities.

More lithium compounds? With all the publicity attending the A- and H-bomb explosions, lithium people may well be anticipating upped government requirements.

That could be in addition to expansion plans recently announced by Lithium Corp.—a \$7-million plant at Bessemer (South Carolina)—and Foote Minerals.

Although most chemical commodities are plentiful enough to satisfy customers, a few are undergoing a supply-pinch. That's particularly true for some fertilizers, among which ammonium nitrate is one. Trade reports indicate that production, old and new, is tightly contract-tied right through June.

And triple superphosphate demand, too, has makers straining to fill seasonal requirements. Actually, triple super supply/demand condition might have been easier had expected output materialized as scheduled. It's a safe bet, though, there'll be no shortage of the material next year when Swift, Armour and Davison all have their new Florida plants humming.

Still quiet, however, are calls from pesticides dealers and formulators. By this time producers had hoped movement of items like DDT and BHC would be high-balling along. But traditionally procrastinating customers are running true to form.

One sure-to-happen result: any late-season scrambling will blot up available supplies fast enough to bring about a shortage.

### SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending April 19, 1954

#### DOWN

	Change	New Price		Change	New Price
Dibutyl phthalate, c.l., divd. E.	\$ .03	\$ .30	Tung oil, tanks, N.Y.	.00375	.22375

#### UP

Lead metal, pigs, prime, St. Louis	\$ .0025	\$ .1380	Mercury metal (76 lbs. per flask), net, flask	7.0	220.0
------------------------------------	----------	----------	--	-----	-------

All prices per pound unless quantity is stated.

"Celanese\* P.B.P.\* is as  
good as having a pipeline  
to our plant"



★ PETRO-BASIC PRODUCTION

*it's continuous . . . dependable*

You can simplify purchasing . . . keep inventories at a minimum without upsetting your processing timetables . . . by relying on Celanese P.B.P.

Petro-Basic Production means the uniformity, purity and price stability of synthetic production . . . the continuity of petrochemical operation, based on integrated raw material supply . . . the dependable delivery provided by a nationwide distribution system that includes bulk storage depots conveniently located in key industrial areas, and a standby fleet of tankcars, tanktrucks and barges.

Write for your copy of "P.B.P.—a factor in chemical purchasing," to

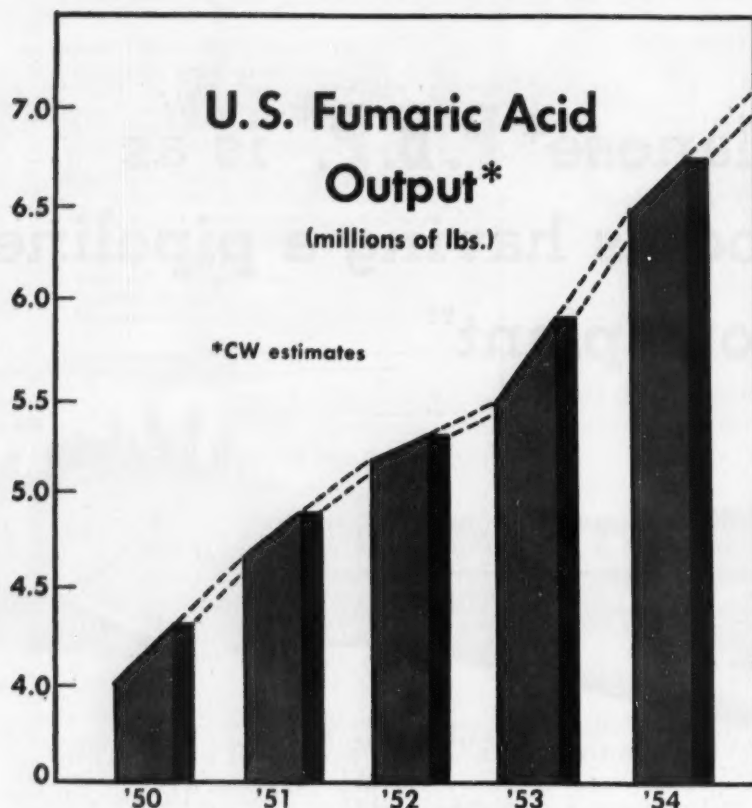
Celanese Corporation of America,  
Chemical Division, Dept. 652-D  
180 Madison Ave., N. Y. 16

ACETONE  
METHANOL  
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FORMALDEHYDE

**Celanese**  
CHEMICALS

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FUMARIC acid's steadily rising output poses the question . . .

## Flood Due in Fumaric?

By next month National Aniline Div., Allied Chemical & Dye Corp., may have the world's largest plant capacity to produce maleic anhydride and fumaric acid. A new plant at Moundsville (W. Va.) will augment output of the same products from its Buffalo (N.Y.) plant. The soon due installation is slated to add 10 million lbs. to U.S. maleic anhydride capacity; around 1 million lbs. to its fumaric capacity. Within a year or two, however, relative newcomer Bzura Chemical Co., Keyport (N.J.) will challenge National Aniline's fumaric acid position. According to president Hyman Bzura, his company is now dickering in Puerto Rico for a site on which to build a plant capable of turning out more than 5 million lbs./year. Fumaric acid production will be via molasses fermentation.

For the past three years, output of fumaric acid in the U.S. has hovered around the 5 million-lb. level (see chart). Maleic anhydride production, however, has been more vacillating; it declined from 23.7 million lbs. in 1951 to approximately 19 million lbs. last year.

The quick succession of new supplies of fumaric acid and the anhydride since mid-'53 has caused some wonder, if not concern: both Monsanto and Barrett joined the list of fumaric acid producers last year.

National Aniline, Bzura, Monsanto, (and formerly Pfizer) account for the bulk of the fumaric acid currently produced in the U.S. Bzura's Keyport plant turns out fumaric acid from an isomerization process on maleic acid, and also by fermentation. Pfizer used the older fermentation process. The other producers derive fumaric acid largely as a co-product (with maleic) from the catalytic oxidation of benzene and from maleic acid byproduct of phthalic anhydride production.

The clue to the increased fumaric-maleic potential output appears to be

- continued growth in polyester demand,
- expected gains in alkyl resin consumption, and
- the belief that lower-priced fumaric acid may become a major chemical building block. (As production increased in 1953, technical fumaric acid dropped from a nearly constant

two-year level of \$0.37/lb. to \$0.32/lb. in October, and to its current level of \$0.27/lb.)

Consumption of polyester resins for laminated or reinforced applications has spurred upward from 8.5 million lbs. in 1950 to 19 million lbs. in 1952. From last year's estimated 26 million lbs., some observers envision a polyester resin usage this year of 35 million lbs.

**Fumaric, Maleic Joust:** Although maleic anhydride tops fumaric acid in styrenated polyesters, it's estimated that close to 2 million lbs. of fumaric acid entered this use last year. Fumaric acid gives a higher heat-distortion temperature to a resin than does maleic anhydride, other things being equal.

Some typical polyester resins made with fumaric consist of between one fifth and two fifths of this simplest unsaturated dibasic acid, about one third of phthalic anhydride; the remainder is a glycol. These liquid linear polyesters are blended with a styrene type of monomer, then catalyzed with or without heat and an organic catalyst to the solid polymer.

But the fumaric has two economic counts against it that must be balanced against the resin properties obtained. Since fumaric acid and maleic anhydride traditionally sell at the same price per pound, the consumer pays for an extra mole of water in a mole of fumaric acid. Moreover, the substitution of fumaric acid for maleic anhydride in polyester resins is on a mole-for-mole basis; therefore, a greater weight of fumaric acid is required to replace a functionally equivalent weight of maleic anhydride.

Another minor use of fumaric acid under the polyester category is in a recently developed molding compound. It consists of unsaturated linear polyesters combined with polymerizable monomeric cross-linkers.

An example of this type of resin is diethylene glycol fumarate, in which diallyl fumarate—another outlet for fumaric acid—is the cross-linker. This cross-linking agent gives results similar to those of styrene, but has the advantage of being compatible in all proportions.

When a filler content (50-80%) of such ground minerals as asbestos, gypsum, clay, etc., is included in the resin, the product resulting from polymerization is tough and extremely resistant to impact.

Use of fumaric molding powders will likely rise because of their high speed of cure, low molding shrinkage, and their high resistance to heat when a suitable cross-linker is used.



## Dependable Source for Chemical Raw Materials



*Ralph Fieldsend, General Manager and Secretary of Hudson Worsted Company, Hudson, Mass., and Frank Ledger, Superintendent, inspect a batch of wool after scouring.*

# "We have been a Wyandotte Soda Ash user for over 40 years"

— Ralph Fieldsend, Hudson Worsted Company

"We have a very unusual company in these days of management turnover," says Ralph Fieldsend, General Manager and Secretary of Hudson Worsted Company, Hudson, Mass. "Our company has been under the guidance of one president for 58 years. A good supplier stays with us, too—for more than 40 years, we have been a constant user of Wyandotte Soda Ash in our wool scouring processes.

"We know that to have good sources of chemical raw materials is a 'must' in our business. We also appreciate that the chemical in-

dustry is a growth industry, and, as such, can play an important part in all industries, including our own.

"While processes haven't changed in years in commission wool combing, still the need for quality has never diminished. Consequently, we demand the highest quality materials from our suppliers."

Do you want a source of chemical raw materials that is a working partner in your progress? You'll find one in Wyandotte . . . a partner that believes in maintaining the highest quality in present

products, and that is continually searching for new products to aid the industries it serves. May we serve you? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*



# Wyandotte

## CHEMICALS

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**Alkyd Boost For Fumaric:** Another estimated 1.6 million lbs. of fumaric acid pours into the production of phthalic anhydride alkyd resins—raw material in many paints, varnishes, lacquers, certain plastics.

Phthalic alkyd resin production has waned steadily from a peak of 368.4 million lbs. in 1951 down to an estimated 345.8 million lbs. last year. Its market has been whittled down by competitive water-base paints.

It's been found that the substitution of fumaric acid for phthalic anhydride—to the extent of 1½-3% of total alkyd resin weight—improves resulting protective coats. Films dry faster, become harder and more durable, resist water and alkalis, have clearer colors that are retained longer than when none of the phthalic anhydride is replaced.

A persuader to future growth of fumaric acid consumption in alkyd resins is its ability to prevent dryer uptake in shelf-standing alkyd paints. When maleic anhydride is used, there is dryer uptake and consequent changes in viscosity. One resin expert is confident that this property might make alkyd resins a larger fumaric outlet than polyester resins.

Indoor sanding sealers and furniture varnishes and lacquers provide steady markets for modified rosin ester resins. Between 80-85% of the reported production of fumaric-acid-modified rosin esters in the U.S. has consisted of fumaric acid-glycerol-rosin and fumaric acid-pentaerythritol-rosin. Typically these contain 8-10% fumaric acid. Just as in the phthalic alkyd resins, fumaric yields a harder, tougher resin than does maleic.

**Rosin Adduct Future:** Fumaric acid-rosin adducts, soluble in ethylene glycol or diethylene glycol, are gaining popularity in steam-setting\* printing inks. The fumaric acid adduct melts about 25 C higher than the maleic adduct, hence yields harder, less tacky resins than the latter.

These inks are odorless on printed wrappers—a mighty important desideratum in the food-packaging industry. Ordinary types of inks delay bottoming and tubing operations on multi-wall kraft bags for at least two days after printing. A fumaric steam-setting ink gives an almost immediate green light to these operations. It therefore saves storage space and man-hours of handling time. The future for this uptake of fumaric acid looks especially

\* "Steam-setting" from its hardening immediately when an excess of moisture in the form of steam precipitates the resin film surface. But the steam isn't entirely necessary; the ink may dry without it in 20 minutes or so. Chief use of this type of ink is in preventing offset immediately after printing.

#### Fumaric Acid End Use Pattern 1953 (est.)

	Percent
Polyester resins	35
Alkyd resins	30
Rosin adducts and esters	18
Upgrading oils and varnishes	11
Foods	4
Miscellaneous	2

promising—may well hit a near 1.5 million lbs. next year.

**Another Market Uplifter:** Fumaric acid helps to upgrade such drying oils as linseed, soya, safflower, etc. Improvements in varnishes containing upgraded linseed oil may be any of these: bodying rate, hardness, drying time, and alkali resistance. Fumaric-modified linseed oil can replace tung oil. Also, fumaric-treated soybean oil has received approval for outside white house paints; it dries quickly and resists yellowing.

But cornering perhaps the greater share of the oils outlet is less expensive tall oil. One expert estimates that last year about 55,000 lbs. of fumaric acid gave tall oil varnishes higher viscosities and improved drying properties.

Depending on the oil treated, anywhere from 2-10% fumaric acid is used—with an average around 5%.

**Miscellaneous Multitude:** Fumaric acid serves as an acidulant in some gelatine desserts and extends their shelf life. Some feel that it does a better job than citric acid in setting the gelatine. It adds tang to orange- or lemon-flavored starch desserts in place of relatively more expensive citric acid.

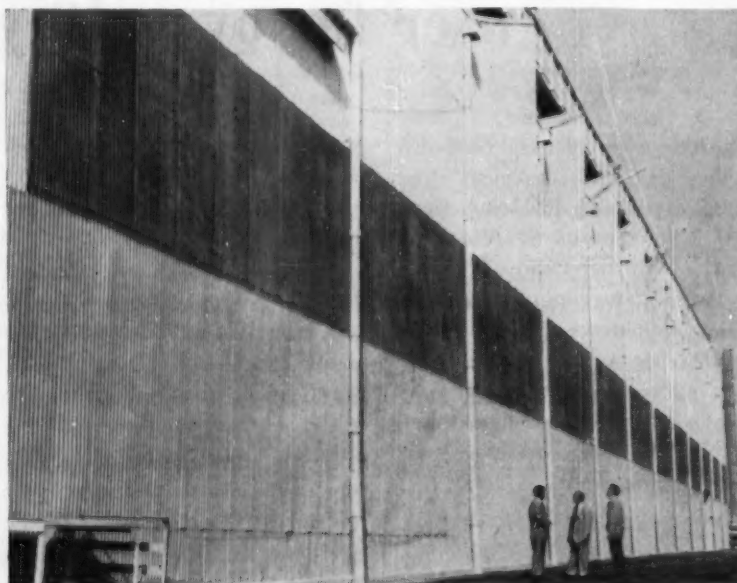
During World War II fumaric acid of food-grade quality took the place of tartaric acid in certain baking powders when the latter was in short supply. Although at the present time little fumaric acid is used in baking powders, a salt of the acid is displacing some cream of tartar as a texture-improver of angel food cakes.

A small amount of fumaric acid and its salts is used for its laxative action in effervescent tablets and powders.

Some favor fumaric acids and its salt over tartaric acids and its salts; it's their opinion that the former produce less gastro-intestinal disturbance. But others are still cautious, are waiting for the results of toxicity tests.

Fumaric acid is also a handmaiden for organic syntheses. Many derivatives come from Diels-Alder addition reactions.

Besides anticipated upward trends in specific major uses of fumaric acid, potentialities of this acid as a major synthetic building block are growing better as output zooms, price slides down.



FUMARIC SIDELIGHT: An outlet is industrial polyester translucent panels.



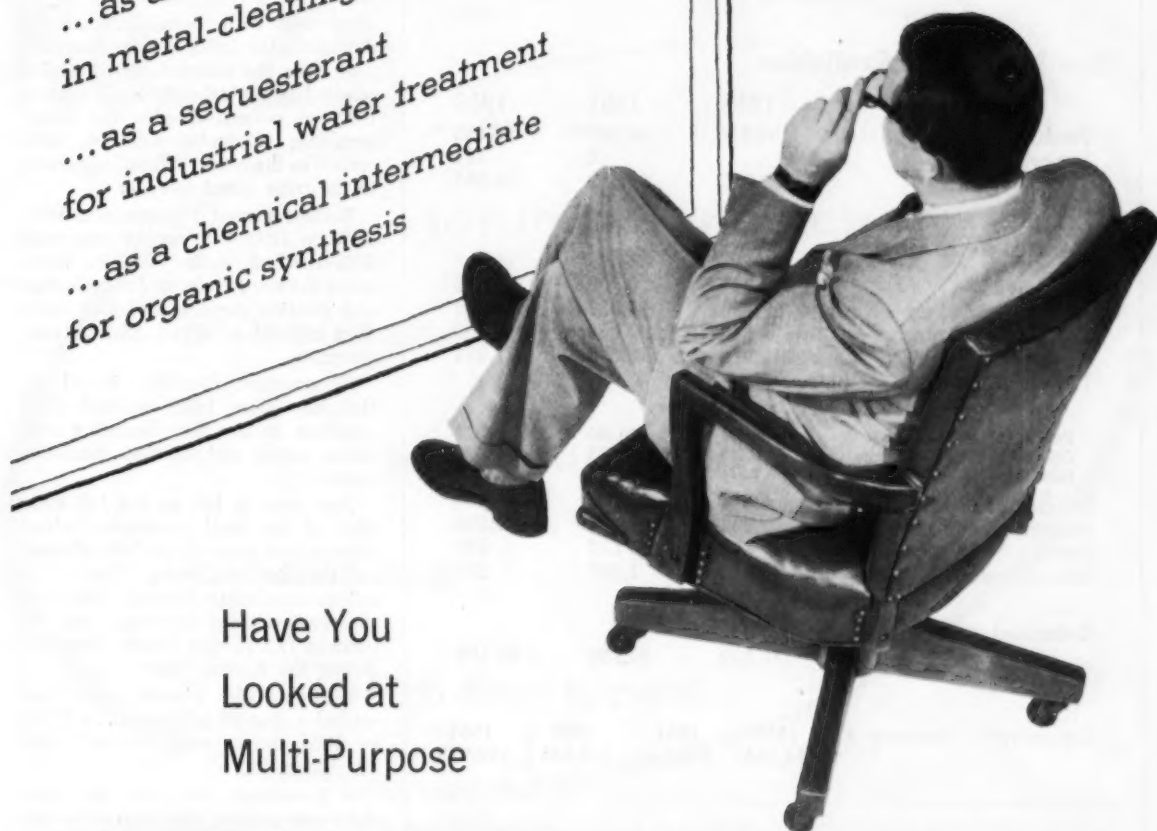
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## PFIZER CITRIC ACID

...as an ingredient  
in metal-cleaning compounds

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Have You  
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• Time-tested, non-toxic Pfizer Citric Acid serves industry in a wide variety of ways. In metal finishing, for example, Citric removes scale and oxide films. One of its salts, Di-Ammonium Citrate, removes iron contamination from stainless steel and rust scale from iron surfaces.

Since it forms water soluble complexes with metallic ions such as iron and calcium, Pfizer Citric Acid makes an ideal sequestering agent to keep metals from precipitating out of solution. As a sequesterant, it is used in industrial water treat-

ment, edible oil production, 2, 4-D formulations and manufacturing processes.

Its chemical structure (one hydroxyl and three carboxyl groups) makes Citric Acid an interesting intermediate for organic synthesis. Esters of Citric Acid, several of them marketed by Pfizer, offer the plastics industry plasticizers with an extremely low order of toxicity for a wide range of uses.

These many and varied applications may suggest Pfizer Citric as an acid or intermediate in your processing. Take a new look at it today!

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**BDSA Toluene End Use Pattern<sup>1</sup>****7961-0961**

(thousands of gal.)

**How Much Was Available:**

	1950	1951	1952
Production <sup>(2)</sup>	76,830 <sup>(3)</sup>	96,585 <sup>(4)</sup>	98,525 <sup>(4)</sup>
Imports <sup>(5)</sup>	...	8	136
Supply—Total	76,830	96,593	98,661

**Where It Was Used:**

Explosives	722	6,700	24,496
Aviation gasoline	27,996	35,827	40,169
Petroleum refining	547	623	635
Chemical synthesis	13,975	18,629	17,161
Protective coatings and solvents			
Paints, varnishes, resins	20,369	20,060	6,459
Other protective coatings	5,520	5,435	1,750
Solvents	2,375	2,322	748
Rubber derivatives	1,414	1,390	1,404
Medicine, pharmaceuticals	1,232	1,860	1,684
Dyes	852	813	630
Miscellaneous	1,048	1,033	333

**Estimated consumption—**

Total <sup>(7)</sup>	76,032	94,692	95,469
----------------------	--------	--------	--------

Capacity <sup>(6)</sup> , January 1	1950	1951	1952	1953
	114,063	115,143	120,996	158,773

(1) Besides nitration, pure and commercial grades of toluene, these data include the toluene content of toluene solution grades.

(2) These production data are comparable to those published by the U.S. Tariff Commission, with the two following exceptions:

- (a) Duplication, attributable partly to the inclusion of the toluene content of solution grades sold for further refinement, is eliminated.
- (b) These data reduce to a 100% basis the toluene content of various petroleum fractions produced for use as toluene solution grades and reported as such by some companies.

Production data include also the toluene content of imported raw materials from which toluene is distilled, in order to avoid disclosure of individual company imports. Tariff Commission figures normally include such data as part of their production total.

(3) For 1950, production data were based on reports to the Chemical and Rubber Division by toluene producers on Form NPAF 25, and on the toluene content of various solution grades by some com-

panies to the U.S. Tariff Commission.

(4) Production data for 1951 and 1952 represent an adjustment of Tariff Commission figures so as to afford comparability with 1950 data.

(5) Represents imports of toluene as such, as reported by the Bureau of the Census.

(6) Based on reports to the former National Production Authority (Form NPAF 25) and on periodic company reports covering plant completions (Form ODMF-1). Capacity data involve some degree of estimation, especially for plants producing toluene-xylene concentrates and other toluene solution grades. Some of the capacity shown has not been in active or fully active status.

(7) Estimated total consumption is based on production adjusted for differences in year-end producer stocks and output, assuming consumer stocks as relatively constant.

The use breakdown for 1950 is based primarily on individual company reports to the Chemical and Rubber Division on Form NPAF 26. Similar data for 1951 and 1952 were partly estimated and partly derived from toluene allocation records covering most of that period.

**Toluene Retrospect**

Marketing men will seek helpful hints from the Business & Defense Services Administration's third\* end use breakdown—on toluene—which the Dept. of Commerce agency had ready late last week.

They will wish, certainly, that the data included 1953, a more "normal" year than the Korea-distorted period covered in the 16-months-old figures. But the pattern—despite the brow-wrinkling footnotes—will be welcomed as the latest "official" approach to the truth about toluene.

Battle-spawned requirements—from 1950 to 1951 U.S. output rose some 26%—reached their peak in 1952, when the use of toluene for explosives and aviation gasoline siphoned more than two-thirds of all toluene consumption.

Government directives, issued periodically since 1952, assured filled pipelines to the then-humming ordnance works and military establishments.

And even as late as last fall some 90% of the total petroleum-derived toluene and as much as 70% of coal-tar material was being diverted to strictly noncivilian demand. Note how the upward trend for avgas and explosives (TNT) was clearly indicated during the Korean War:

- High-grade aircraft fuel use totaled a near-28 million gal. in 1950; by 1952 the amount was well over 40 million.

- Armament take, over the same three-year period, was even more impressive—from 722,000 gal. in '50 to a more-than-threelfold 24.5 million gal. by the end of '52.

Impact of military need on civilian toluene supply is underscored by the dramatic decline in the protective coatings and solvents category. The 1952 BDSA figures show a full two-thirds drop from the previous year's toluene consumption.

That, of course, doesn't mean that paint and varnish makers proportionally cut output of their own products; many, in an attempt to circumvent the toluene shortage, switched to other materials (e.g., xylenes, butyl derivatives) in their formulations.

Now, with the gradual slackening of government requirements, once-scrambling industrial consumers are finding current toluene supplies far more ample than they were during the time covered by BDSA's latest end use module.

\*First was benzene (CW, Jan. 2); second covered sulfuric acid (CW, Feb. 27).

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cleansers  
of many types



DETERGENT ALKYLATE No. 2 produces alkyl aryl sulfonates with exceptionally good color and odor characteristics, and unusually desirable detergent and foaming properties.

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Fluoride  
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## What Their Neighbors Think of Them

Results of an opinion survey in the neighborhood of three research centers

1. Do you feel that this research center causes you annoyance because of:

	Allied			Celanese			Armstrong			Total		
	Yes	No	No op.	Yes	No	No op.	Yes	No	No op.	Yes	No	No op.
Fire hazard	2	50	1	4	56	6	0	37	1	6	143	8
Noise	0	50	3	3	60	3	0	38	0	3	148	6
Odors	3	48	2	6	58	2	0	38	0	9	144	4
Dust, smoke, fumes	1	48	4	0	64	2	1	37	0	2	149	6

2. Do you feel that the presence of this laboratory benefited you and the other residents of this community with respect to:

Property taxes	17	16	20	2	35	29	11	4	23	30	55	72
----------------	----	----	----	---	----	----	----	---	----	----	----	----

3. What effect do you feel the presence of this research center has on the value of the property you occupy?

Increased	8	7	15	30
Decreased	2	4	3	9
No change	34	31	15	80
No opinion	9	24	5	38

4. Do you feel that over-all, this research center:

Is an asset?	*	25	20	45
Is detrimental?		5	0	5
Has little or no effect?		31	13	44
No opinion		5	5	10

\*In the vicinity of Allied's laboratory, the question was: Do you feel that over-all this research center is an asset? Replies: yes, 20; no, 21; no opinion, 12. To provide a wider range of expression, the question subsequently was rephrased to the form in which it appears above.

## Ahead on Points

You might not think of a research laboratory as an objectionable neighbor, but last week U. S. Rubber Co. found itself in the crossfire of a legal battle aimed at preventing the erection of a laboratory in countrified Wayne Township, N.J.

Brought against the community's governing body by a group of property owners, the action is specifically designed to enjoin the issuance of a building permit to the company.

It's the latest phase of a running fight between the proponents of the laboratory and its hostile potential neighbors.

The company's experience with the dispute could point the way to better methods of coping with a growing industrial community relations problem. Here's how the conflict developed; and here are the factors that highlight it as a potential pilot case of general application.

Very simply, supporters of U.S. Rubber point to the area's burgeoning population growth in recent years, strongly cite their belief in the need for attracting taxpaying industry. They look upon the laboratory as an important step in the right direction; and—convinced that it won't be an

undesirable addition— they're willing to amend the zoning code to permit the company to settle on a site of its own choosing.

Opponents of the laboratory are chiefly settled in the immediate neighborhood of the proposed site. In principle, they agree with the desirability of bringing in industry. But they're also highly dubious, if not downright distrustful, of assurances that the lab won't constitute an annoyance, drop the value of their property.

Here are their most salient objections, stated last fall when U.S. Rub-

(Story begins on page 101)

## The Charges

This is strictly a residential area. We purchased our property on the assumption that it would remain so. We object to industry, fine as it may be for the community, in a built-up residential neighborhood.

More particularly, we feel the laboratory would constitute an objectionable and potentially dangerous neighbor.

(1) It would be located on a narrow two-lane road; any increase of traffic would create a dangerous situation. As a result, we might have to widen the road, build sidewalks, assign a traffic officer to the spot.

(2) It would put a serious and possibly costly strain on the municipal water supply. And it is likely that our municipal water supply will be inadequate. The company says it would sink wells if a shortage developed, but that might dry out the wells drilled by a number of nearby home-owners.

(3) The laboratory and some of its grounds would be lit up all night long, change the entire atmosphere of the neighborhood.

(4) Noise, odors, dust, smoke, fumes and the fire hazard are additional objectionable features.

Because of these points, we feel that the value of properties surrounding the proposed lab would fall. Industry should look for an area that is equipped to handle it; our neighborhood is not such an area. Why, our town engineer tells us that even here in Wayne Township there are approximately 42 parcels of vacant land that might be suitable for research laboratories.

## The Company's Reply

We are not building a manufacturing plant. It is a research center which will look like a school or hospital. Set back from all main roads and scenically landscaped, it will scarcely be visible from the two roads it adjoins.

We feel it will be a credit to property owners and the community at large.

(1) The road in question carries a lot of traffic now. The increase due to commuting would not be any greater than if a housing development were located on the property. During the morning and evening busy hours we'll provide our own officer, if needed. Moreover, our commuting traffic will run counter to the normal flow; and there won't be a constant flow of trucks coming and going during the day.

(2) We will tap a water main of the Newark water system, pay the cost of extending that main to our site. This supply is adequate for our normal daily needs. A storage tower will handle emergencies (e.g., fire). We are not planning to sink wells. Moreover, we will be putting in our own sewage disposal system.

(3) The building lights kept for our watchman are small, and specially shielded. Night work, when necessary, will be in a lab area away from the road.

(4) Due to the very nature and scale of our work, noise, odors, dust, etc. will not possibly be a problem.

Our decision to relocate our research department in Wayne Township was reached after an exhaustive study of more than 100 communities in five Eastern states. It has the desirable features we now look for in a laboratory site.

ber unfolded its proposal, and how they were answered (*above*).

Despite firm assurances by the company that its proposed installation would not be guilty of the charges leveled at it, a hard core of opposition persisted. Formed around the Wayne Township Civic Assn., a group

headed by one of the controversial lab's closest potential neighbors, the anti group took resolute steps to thwart U.S. Rubber's plans.

In order to build on the desired site, the company first had to request a revision of the zoning code to permit the erection of a research lab-

oratory in a residential district. During a public hearing on the matter before the township's board of zoning adjustment, March 3, the company's objectivity in the matter was questioned.

It became clear that only the word of an unbiased agency would stand any chance of being conclusive. Seeing its work cut out, the township's chamber of commerce, already resolved to support the U.S. Rubber proposal, set out to find that agency.

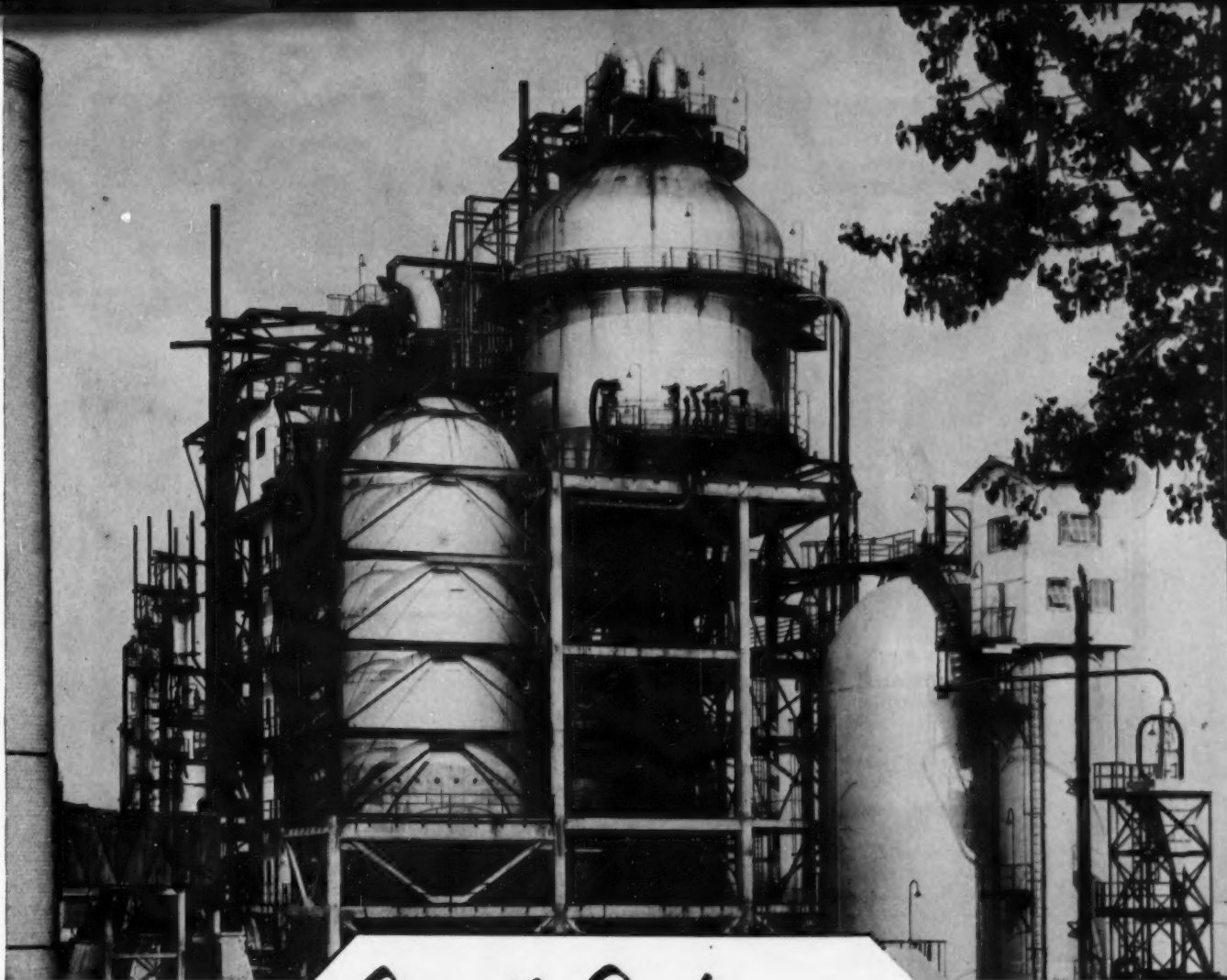
Sparked by Louis Hesselbrock, director, and Robert Roe, president, the chamber's plan was to poll the residents of the areas surrounding three prominent industrial research centers, determine how these people felt toward their industrial neighbor.

First choice for the opinion sampling job was the Gallup Poll (Princeton, N.J.). When Gallup turned the job down because of time limitations, chamberman Hesselbrock went downstate a short distance to Madison, approached Drew University sociologist Purnell Benson. Benson accepted the commission, enlisted the aid of fellow professor H. Jerome Cranmer in directing the project.



ROE AND HESSELBROCK. For doubters, an unbiased agency.





*Photo Courtesy The Texas Company*

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Pinpointing laboratories that are comparable (in size, environment, etc.) to U.S. Rubber's planned structure, the pollsters finally settled on Allied Chemical's facilities at Morristown, N.J., Celanese's Summit, N.J., laboratory, and the Armstrong Cork research center at Manor Township, Pa.

Results of the surveys in these areas are detailed in the box on page 101. Although the validity of the data is not questioned, Benson poses some limitations as a result of the time limitation on return calls.

He estimates that the proportion of these cooperating in the poll could have been boosted to some degree by followups.

Armed with the results of the survey, the chamber gave the board of zoning adjustment tacit substantiation of the company's claims. The board passed favorably on the proposal to rewrite the restrictions on construction in residential zones. Last week the Wayne Township Committee accepted the board's recommendation, passed legislation to enable the company to apply for a building permit.

Represented by counsel, opponents of the zoning change have taken steps to challenge it in the courts. At this writing an injunction was being asked for in Superior Court, Paterson, N.J.

Obviously, the anti forces were in no way influenced by the opinions reported by the pollsters. Their arguments, purporting to show that the lab will not pay its way, are chiefly with the township's administration. They further cry: "It's easy to be for the lab when you live a mile away. Even if the lab lives up to claims, we think it's unfair to sacrifice us for the benefit of the rest of the community."

The feeling is that the survey's chief value was in strengthening the convictions of those already in favor, smoothing the way for positive action by the township committee. Some imposing sources (planning consultants, state groups) are quoted in support of the oppositions claim that the lab will not be the bonanza it's cracked up to be. This charge merits a serious reply. But that's something for the township fathers, against whom the bulk of ire is directed.

There is some resentment directed toward the company, but it shouldn't stand in the way of future good relations with the community. At this stage of the hassle, the company appears to be ahead on points. Whether it can retain its advantage in the courts remains to be seen.



DAIRY SPRAYING: Job for ampholytics.

## Knack for Mixing

A pack of firms are now sniffing out the commercial potential of ampholytic detergents—a new family of surface-active agents. Actively researching: General Mills, Goodrich Chemical, General Dyestuff.

In Europe, Th. Goldschmidt A. G. (Essen, Germany) has already launched its ampholytic Tego compounds, is currently angling for state-side markets through its U.S. sales representative, Goldschmidt Chemical Corp. (no corporate relation).

An ampholytic surface-active agent combines anion and cation activity in the same chemical compound, obviates problems that arise when anionics are mixed with cationics. The best detergents are anionic (soaps, sulfonates) and the best germicides are cationic (quaternaries), but the two cannot be mixed in a detergent-germicide preparation without serious impairment of their respective properties.

Ampholytic compounds are not looked upon as a means of getting effective dual action of this kind in one molecule. But two ampholytes—one a germicide, the other a detergent—are readily mixed without cutting the efficiency of either. Goldschmidt uses di-(octylaminoethyl)glycine lactate as the germicide; an alkylaminoethylglycine hydrochloride as the detergent in a mixture\* tradenamed Tego 103.

Aside from cleansing and germicidal action, claims for the product include mildness to the skin and a low

degree of odor, color, toxicity. A 1% solution is normally used for disinfection. At this concentration, the product is said to eliminate some odors produced by bacterial action. Intended outlet: as a disinfectant cleaner for use by doctors, veterinarians, industrial workers; dairies, fisheries and food-processing plants, in general, are also cited as potential consumers.

But the ampholytics may have more than germicides in their future. Because they appear to be easy on the skin, they are being eyed by producers of shampoos, shaving creams, face lotions, etc. Other application possibilities: foaming agents, textile softeners, special detergents.

At least one American company (General Dyestuff) is already offering experimental quantities of ampholytic textile processing aids. Still in the laboratory: a Goodrich variation on dodecyl- $\beta$ -alanine; and General Mills' substituted  $\beta$ -alanines† (Deriphats).

Cost is the steepest hurdle to commercial acceptance. If this can be cleared, the versatile ampholytics may pose a threat to some of their entrenched surface-active cousins.

**Nuclear Powwow:** Peacetime uses of the atom will bring a flock of technical people to the American Institute of Chemical Engineers' upcoming (June 2-25) International Nuclear Engineering Congress at University of Michigan (Ann Arbor). Technical side of the proceedings will consist of some 90 papers on these subjects: (1) reactor construction materials; (2) reactor technology; (3) research and educational reactors; (4) reactor fuel refining and preparation; (5) power reactors; (6) processing irradiated materials; (7) applications of radioactive products. In addition, industry and academic people will participate in a symposium on education in the nuclear field.

Sponsored by the institute's nuclear energy committee, the congress will charge a registration fee of \$5 for members, \$7 for guests.

**Forging Ahead:** Universal Oil Products Co. (Des Plaines, Ill.) has taken its new research center blueprints off the drawing board and out into the field. Construction, now getting under way, is slated for completion by mid-1955. Novel planning feature: all laboratories are placed on the north side of the building to get the best light.

\* Covered by British patents 684,672 and 692,022.

† Treated in U.S. patent 2,619,467 among others applied for or assigned to General Mills.

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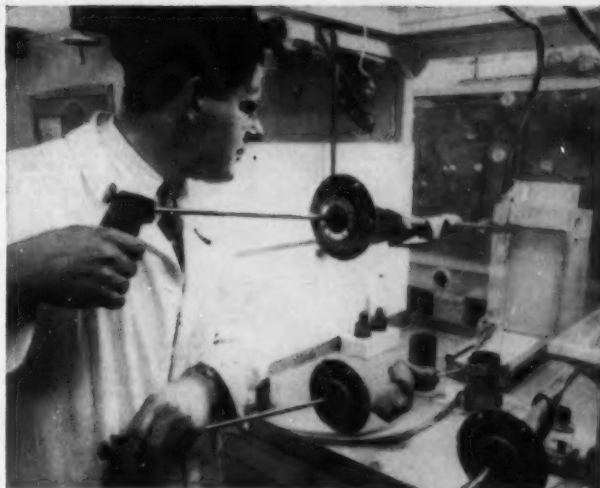
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IRRADIATED in unit tended by scientist (left) carbon-14 is automatically pipetted by shielded chemist (right) for protein study.



FED to test-tube plant (left), isotope is built into protein, later turns up in amino acids separated by chromatography (right).

## Never too Hot to Handle

All the four researchers shown above have one trait in common—the light touch. They work in the gleaming new isotope production laboratories of Britain's radiochemical center at Amersham (Buckinghamshire), where a slip of the finger may spell personal injury and the loss of extremely costly radioactive materials.

Britain's first buildings especially designed to accommodate isotope output, the new laboratories will emit a bountiful flow of radioactive ele-

ments like carbon-14 and strontium-90. But even prior to the new facilities, Amersham was solidly in the isotope business. Last year, for example, the center moved \$319,200 worth of materials to 36 countries. It's principal customer: the United States, Canada, Germany, France, Sweden.

Taken last week, shortly after opening day, these pictures are the first out of the new isotope production laboratories. They show how

Amersham's isotopes are put to work in one tracer probe of protein synthesis. By building the isotope into protein molecule, then breaking the protein into component amino acids, scientists are able to gain insight into how acids were pieced together in the original molecule.

Tracer studies are yielding a wealth of invaluable information on a multitude of chemical processes that vitally concern medical and industrial researchers.

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## RESEARCH . . . . .

Tagged: Radioactive Versene (ethylenediaminetetra-acetic acid) has just been put on the product schedule of Abbott Laboratories' (North Chicago, Ill.) radioactive pharmaceuticals division. Beamed at chemical and physiological probes, the tagged chelating agent is prepared in accordance with techniques developed by Frederick Bersworth (Frammingham, Mass.), manufacturer of Versene. Labeled with carbon-14, the new product is allocated by the AEC.

Scale Stopper: A new accomplishment of the Army's Engineer Research and Development Laboratories (Fort Belvoir, Va.) may take one of the kinks out of the desalting of sea water by thermocompression distillation. ERDL's efforts were focused on potential ways of combating scale formation on evaporator tube surfaces. It found an answer in frequent descaling with citric acid, which, ERDL claims, "will permit indefinite maintenance of production by field units." Lost capacity and efficiency due to evaporator tube scale can, in a relatively short period, double the cost of brine distillation.

Headliners: Five reports received keen scrutiny from chemical research men at last week's meeting (at Atlantic City, N.J.) of the Federation of American Societies for Experimental Biology.

- A new morphine derivative, 14-hydroxydihydromorphinone hydrochloride (Numorphan), was unveiled by Endo Products (Richmond Hill, N.Y.). The compound shows about 15 times the analgesic activity of morphine.

- University of Michigan Ann Arbor) probes spotlighted the promise of siloxanes in the treatment of peptic ulcer. Their findings: daily oral administration of a methylpoly-siloxane emulsion to animal ulcer sufferers promoted healing and rapid gain of weight.

- Hypotensive quinoline derivatives were unveiled by University of Pennsylvania researchers. Supported by McNeil Laboratories (Philadelphia), the project spotlighted the potent blood pressure-reducing activity of 1-methyl-3-(N-1-carboethoxyethylcarbamyl) quinolinium iodide.

- A new series of local anesthetics were reported by Wallace and Tierman (Belleville, N.J.) workers. The neophytes are alamine esters of substituted benzoic acids of which sec-butylaminoethyl 4-amino-2-chlorobenzoate proved four times as active as procaine, no more toxic.



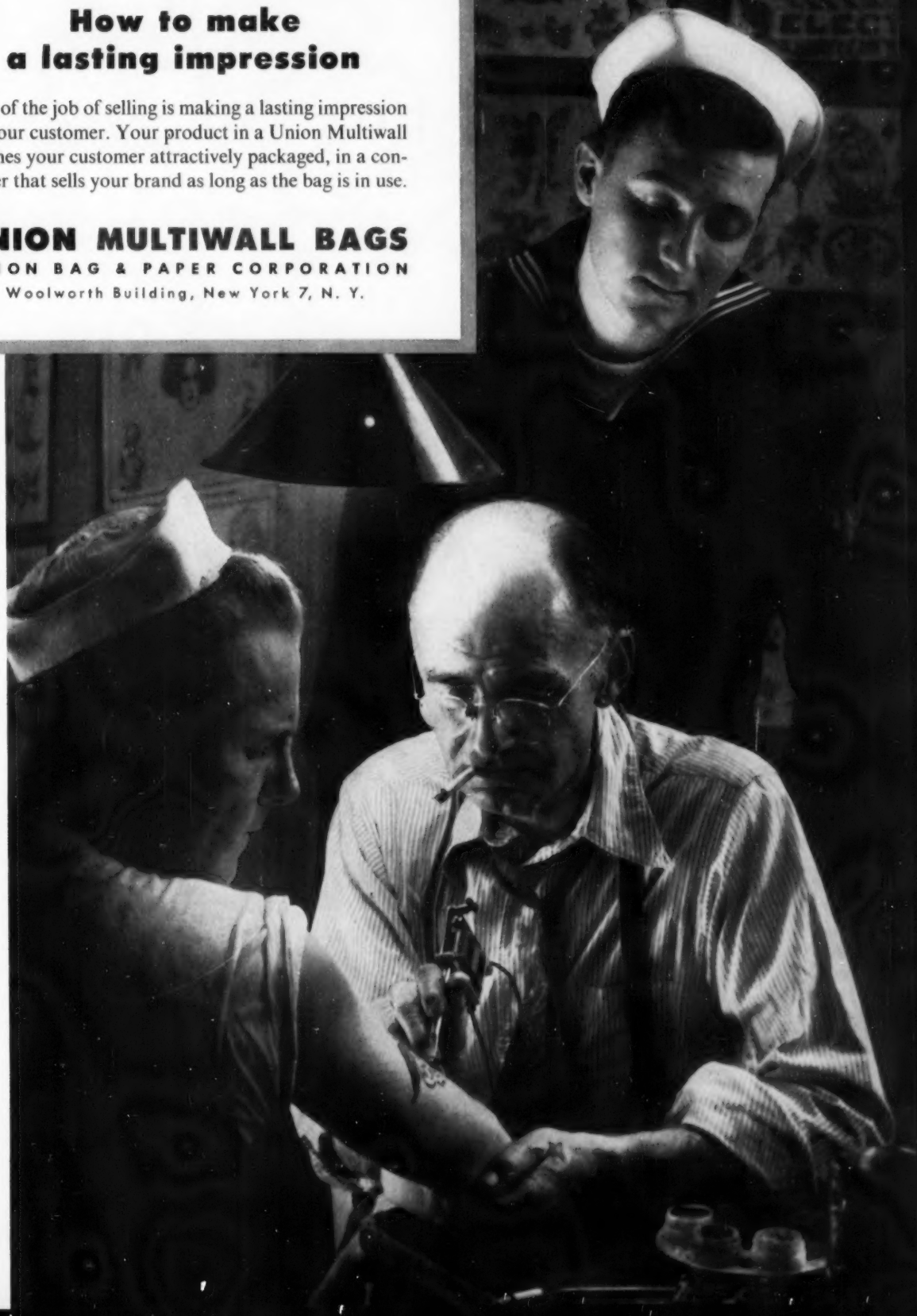
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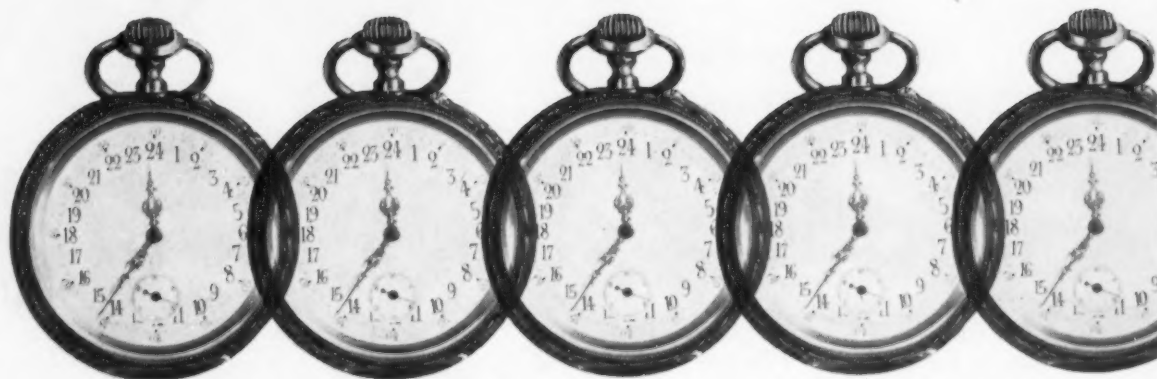
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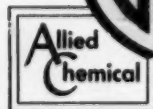
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